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1911/12

THE BIENNIAL REPORT
OF THE
BOARD OF TRUSTEES
OF THE
Agricultural College
of Utah
For the Years 1911, 1912.

ACCOMPANIED BY

The Report of the President, Departmental Reports,
and the Secretary's Report of the Receipts
and Disbursements.



THE ARROW PRESS
Tribune-Reporter Printing Co.
SALT LAKE, UTAH
1913

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THE BIENNIAL REPORT OF THE BOARD
OF TRUSTEES
OF THE
AGRICULTURAL COLLEGE OF UTAH,
FOR THE YEARS 1911 AND 1912

To the Governor and Legislative Assembly of the State of Utah:

Ladies and Gentlemen:—In behalf of the Board of Trustees of the Utah Agricultural College, I present herewith the Biennial Report of the College for the years 1911 and 1912.

It is a great pleasure to call your attention to the rapid growth, healthy condition, and high standing of the Utah Agricultural College. The Trustees are a unit in believing that the Institution in its service to the masses of the people is richly repaying the appropriations to the College. Perhaps the most significant fact that can be brought to your attention is that, considering the population of the State, the College has enrolled more students in industrial subjects, and reaches more people by its extension work, than does any other similar institution in the United States.

The tremendously rapid growth of the College during the last half decade has strained our every resource. High praise is due the officers and faculty of the College, who have labored in season and out of season to meet successfully the changing and increasing demands. It has been especially difficult, with the very limited means at our disposal, to do high grade and extensive work and to maintain buildings and grounds in a proper condition. I am pleased to report that up to the present we have accomplished our work without incurring any deficits for maintenance. While the present mill tax law remains in force we shall continue, as far as in our power lies, to live within its provisions.

We are obliged to report that satisfactory work can no longer be done by the College unless more floor space be pro-

vided. Our only requests, therefore, are for more room; and, in making these requests, we have attempted to be as conservative as possible. We have no desire for buildings or equipment for which there is not a sufficiently large need.

We call your special attention to the report of the President of the College with its supplementary departmental reports. The members of the Board endorse heartily the recommendations of the President of the College.

Our requests may be summarized as follows:

Agricultural Chemistry Building.....	\$65,000.00
Dairy Building with equipment.....	20,000.00
New Roof for the Mechanic Arts Building.....	9,000.00
Shed for Farm Machinery (for instructional purposes)	2,500.00
<hr/>	
Total	\$96,500.00

We ask further for an appropriation for the construction of the new heating plant, made necessary by the completion of the Thomas Smart Gymnasium.

Respectfully submitted,

LORENZO N. STOHL,

President, Board of Trustees.
Utah Agricultural College.

President's Report.

To the Board of Trustees of the Utah Agricultural College:

Ladies and Gentlemen:—I have the honor to submit herewith a report of the work and condition of the Utah Agricultural College for the years 1911 and 1912. I call your special attention to the appended Departmental reports.

The Utah Agricultural College has been managed during the last two years, as in former years, in strict accordance with the best interpretation of the laws under which the College exists. Every operation of the

College rests upon the conviction that the Institution was created by the State for the purpose of dignifying and making more attractive and profitable the necessary pursuits of life, which until recently were held not to have professional value. That is, all industrial pursuits such as agriculture, home making, commerce, mechanic arts, in all their branches, constitute the field of activity of this Institution. To develop this field, it is necessary for the College to determine the resources of the State; to teach the young people who come as students, the methods by which these resources may be developed to the highest and most satisfactory degree; to show that fine lives may be led by those who give themselves to the necessary work of the State, and to bring the message of industrial prosperity and uplifting to every citizen of the State.

The strong industrial spirit which permeates every department of this Institution does not, however, overshadow the fact that the citizenship of the State is greater than any resource of soil or water or rock or sunshine. We have attempted, therefore, in the class rooms, on the College campus and throughout the State, to develop more completely the manhood and the womanhood of the citizenship of the State. True men and women, trained to know and to use the natural objects about them will make a great and permanent state.

While the mission of the College, as above defined, is very

great, we have attempted only to grow with the State; yet to keep, as an educational institution should, an ideal before the people, to the accomplishment of which the State may bend its energies. Therefore, we have lived within the means assigned us, but have attempted to cover the field as completely as our opportunities would allow. The Agricultural College is essentially an institution of service to the State of Utah, and our duty has been conceived to be to serve as widely and as well as the State law permits.

The work assigned to the Agricultural College is, undoubtedly, popular among the people of the State. During the last five years, the Agricultural College has grown so rapidly that the strength of every employee has been over-taxed to meet the new demands. During the last five years the total attendance has increased from 717 to 1,380 students and the present school year (1912-13) shows up to date the largest attendance in the history of the Institution. There has been an even more notable increase in the grade of students attending. The number of students of College grade has increased in five years from 148 to 446 or more than threefold. Every department, save the high school, shows an increased attendance.

The specific subjects, for the dignifying of which the College was organized, have all shown wonderfully rapid advances. During the last five years the number of students registering with agriculture as their major subject has increased from 126 to 659 or more than five-fold. This agricultural attendance, considering the population of Utah, is larger than in any other western state, and larger, in fact, than in any other state in the Union. During the same period the students of home economics have increased from 87 to 201; of commerce, from 127 to 163; of the Summer School, from 56 to 224. In addition, nearly 250,000 men and women have been present at the schools and lectures conducted by the Extension Division.

The total number of degree graduates at the close of the year 1907 was 113. During the last five years, 181 young men and women were graduated with degrees. Three-fifths of the Alumni Association have been graduated during the last half decade.

These numbers are presented only to show the rapid

growth this Institution has undergone during the last few years, and as an explanation of the changes and improvements that the College authorities have been compelled to make and of the needs stated in this report.

It is evident that such a rapid increase in the number and quality of students has compelled a great number of new adjustments and, in fact, the chief administrative labor of the last few years has been to meet satisfactorily the new conditions imposed upon us.

As the attendance increased during the last few years it became necessary to increase the number of teachers. This has been done until, now, every class is of proper size and is being taught in a satisfactory manner. With the growth of the Institution, two great difficulties presented themselves. First, as has been observed in previous reports, the Faculty of this Institution has changed greatly from year to year; and second, as the attendance of true college grade increased, an insistent demand arose for experts in a number of professional subjects. A vigorous effort has been made, therefore, during the last five years, to secure permanency in the Faculty, and to increase the scholarship of the teachers. Both of these attempts have been measureably successful. By encouraging Western men to go away to study, and then employing them as they returned, a faculty has gradually been built up, whose chief interests are in the West, and who are not so likely to leave the Institution because of slight differences in salary or opportunity.

The scholarship of the Faculty has been greatly advanced during the last two years, in fact the present Faculty of the Utah Agricultural College measures up with the best agricultural college faculties in any part of the United States. Every member of the Faculty, above the assistant's grade, has the equivalent of the training required for the bachelor's degree. More than forty of the world's leading colleges and universities are represented on the Faculty. Of the seventy-six men and women who do the instructional work, twenty-five are professors; of these, twelve hold doctor's degrees, fifteen hold master's degrees, five hold bachelor's degrees; all have done post-graduate work. Three are associate professors, who have all done post-graduate work in the large institutions of the world. Fourteen are assistant professors; of these, twelve

have had training beyond the bachelor's degree. There are thirty instructors, most of whom have had special training beyond their college course. The high position of the Utah Agricultural College among the agricultural colleges of the country, is due in a large measure to the quality of the Faculty. We may well hope for large results to come to the State from the activities of the finely trained and thoroughly loyal Faculty of the Utah Agricultural College. The compensation of properly qualified instructors has been discussed in former reports; it must be in keeping with the times and with the training of the men.

The graduates of the College, though young in years, are establishing for themselves most enviable reputations. They are in private work; in the advanced schools of a dozen states; in the expert service of several states and countries, and a large number are employed in the Department of Agriculture. Everywhere they are attaining great success. By the record of its graduates the College is quite willing to be judged. Moreover, the thousands of students who have spent a year or more at the Institution, without graduating, are showing, as far as can be learned, a high degree of efficiency in their work.

A notable departure during the last few years is the raising of the entrance requirements of the College. The Institution has always attempted to meet the specific needs of Utah. In the early history of the College, therefore, it was felt that the entrance requirements should not be so high as to discourage students in a state where the high school system was poorly developed. When the high schools began to multiply throughout the State the entrance requirements were raised. This has already resulted in good; though it would have been unwise to have attempted it earlier.

The high school movement has now assumed very large proportions in the State. At the last session of the Legislature the income from one-half mill of the State's taxable property was set aside to be used exclusively for the support of the State high schools. This gave a new life to the high school movement; in fact there are, now, a large number of most excellent high schools in the State. The enthusiasm with which various Utah communities have voted money for splen-

did high school buildings, with all modern equipment and conveniences, is a marvel to those who understand that the population of the whole State is, after all, scarcely much more than that of a fair-sized American city. It shows the great love for education and developed intelligence that abides in the hearts of the people of Utah.

In view of the rapid extension of the State high schools, in work and number, by the use of State funds, it was felt that the Agricultural College should no longer maintain regular high school work. At the last meeting of the Board in the school year 1911-12, it was decided, therefore, that the high school work should be gradually eliminated. The first year will be discontinued in 1913-14; the second in the following year, and so on until the high school work is no longer a part of the Agricultural College. This will give the Institution a more distinct college emphasis and should not cause a great diminution in the attendance since the high schools which are now turning out many graduates, should be able to supply the Institution with sufficient students to enable it to do its work among the people of the State.

Meanwhile, there will be in the State for many years to come, thousands of men and women, old and young, who desire to share in the benefits of the practical instruction given by the College, without attempting to enter or to finish the college courses. Arrangements have been made, therefore, for the establishment of a number of practical courses, to which will be admitted persons eighteen years old or over who have had the eighth grade, or younger people who have had some high school work, and who desire to spend a year or two in special preparation for their life pursuits. This should meet a very important need in the State, and should supplement well the work of the high schools.

The Agricultural College is in great sympathy with the high school movement, and tries to aid it in every possible way.

The majority of the high schools are now giving elementary instruction in agriculture, home economics, commerce, and mechanic arts, the subjects which are included in the special field of the Agricultural College, and the College, therefore, has a special interest in the work done by the high schools.

It is to be hoped that in this State, which has been the

New Practical
Courses.

Relation
to State
High Schools.

pioneer in so many good things, the modern view of high school education will be adopted. The high schools of Utah should be made to conform with the needs of the home communities. They should train the young people for the special work of their communities, and not primarily for the purpose of entering this or that college or university. The Agricultural College stands ready to accept students of the high schools of the State, whatever work they may have done in the high schools, providing it has been well done, and to give proper academic credit for such work.

The last Legislative Assembly dealt very kindly with the Agricultural College in providing for a gymnasium which had been so long needed. The building was ready for the work of this school year, at an expense of about \$63,000, \$50,000 of which was provided by the State, \$10,000 by the Hon. Thomas Smart of Logan, a trustee of the College, and \$3,000 from donations by various organizations and individuals. The College is now able to supervise carefully the physical welfare of the students, and to foster desirable athletic activities. The Thomas Smart Gymnasium has already become the center of the social functions of the College. This enables the Institution to exercise a close and helpful supervision over the social affairs of the Student Body, which is always desirable in the training of young people.

The hydro-electric power plant, authorized by the last Legislative Assembly, for the use of the Agricultural College and for the State institutions located in Ogden and Salt Lake City, is now being completed. It promises to be of great help in furnishing the needed light and power at a minimum of cost.

The most notable new feature of the past two years is the new manner of support for the State's educational institutions.

At the last session of the Legislature, 28 per cent of the entire annual revenue derived from the general tax levy for State purposes, exclusive of State School and High School funds, were set aside for the general maintenance of the University, the Branch Normal School and the Agricultural College. Of this amount the University is to receive 64.43 per cent; the Branch Normal School 7.23 per cent and the Agricultural College 28.34 per

cent. The Institutions agreed that they would try the experiment of living within the means thus provided, and of asking the Legislature only for buildings and such other items as are not legitimately chargeable to maintenance.

The amount awarded the Agricultural College by this bill, in view of the rapid growth of the College, was felt to be too small, but it was also felt by all concerned that nothing better could happen to the educational institutions of the State than to have a tolerably certain income from year to year and thus to be relieved from the uncertainty of varying biennial appropriations. It was found quite difficult to live within the income from this fund, which was somewhat smaller than former appropriations, but by watchful care in all expenditures, we were able to finish the first year under the mill tax fund without a deficit, and in that way keep our promise to the State. If the income for the present year does not fall below that of last year, we shall succeed, we believe, in avoiding any deficits for maintenance. The rapid growth of the College is, however, making this very difficult.

During the last few years, the cause of industrial education has everywhere progressed very rapidly. An immense amount of new material has been added to the industrial professions, and they have been better systematized than ever before. All this has led to an extension and revision of the courses of study offered by the College. Beginning with this year, it is hoped that the courses of study will be placed upon a new and more elastic plan, so that the great number of varying needs of the students may be satisfactorily met.

With more advanced work and new courses of study it became imperative also to extend the facilities of the various departments. In fact, several new departments were organized. Notable additions and reorganizations occurred in the departments of bacteriology, botany, agronomy and animal husbandry; but, in fact, every department has of necessity been materially extended both in floor space and equipment in order to meet the needs of the larger Student Body and to make possible the more advanced instruction. The departments of bacteriology and botany, which lie at the very foundation of agriculture and home economics, were organized during this period of very rapid growth.

A thousand and one other changes were made necessary by the new conditions, as may be witnessed by any person who will take the trouble to make an inspection of the Institution. Every room is now crowded to its limit. Every class room is occupied practically every hour of the day and the laboratories are filled with students; yet it is quite impossible, with the floor space at our disposal and with the equipment of the laboratories, to meet with much satisfaction the needs of the College.

These changes have been a heavy drain upon the resources of the Institution as well as a constant worry, since, with limited funds, it is difficult to satisfy the insistent demands of new and growing departments crowded with students. Meanwhile, as much as possible has been done and the work now being offered by the Institution may be looked upon as being of the very best quality. We hope that additions to equipment and floor space will come as rapidly as the State can afford them.

For administrative purposes the College is divided into, (1) the School of Agriculture, (2) the School of Home Economics, (3) the School of Commerce, (4) the School of Agricultural Engineering, (5) the School of Mechanic Arts, (6) the School of General Science, (7) the Experiment Station and (8) the Extension Division. The schools of the College have charge of the registration and course of study of the students.

The attendance in each of these schools has grown considerably during the last few years. Each school is in a healthy, growing condition. The reports of the directors of the schools will be found appended to this report.

The School of Agricultural Engineering, the latest of the schools to be organized, was made possible under an act of the last Legislature. As is well known, the Utah Agricultural College was the first State institution in Utah to offer degree courses in Engineering. During the consolidation controversy the University of Utah was designated as the place where the engineering work of the State should be done. Thereafter the Agricultural College offered no engineering. At the last session of the Legislature, however, it was ordered that engineering as applied to agriculture,—in irrigation, drainage, road building, rural sanitation and in all other branches that deal with rural welfare,—should be given by the Utah Agricultural

College. In conformity with this act, the School of Agricultural Engineering was established. While it always takes time to build up a new course, the prospects for this school are of a very encouraging nature. The field for the agricultural engineer is large and growing, and this new school will do much to develop our State.

The teaching and demonstration work done by the College outside of Logan, is in charge of the Extension Division. It conducts farmers' and housekeepers' schools, The Extension Division. farmers' institutes, lectures, special demonstration trains, a correspondence course, an industrial news bureau, and a farmers' and housekeepers' information bureau. Its special purpose is to enable all the people of the State to share in the benefits of the College.

The extension work was organized as a distinct division of the College, only five years ago. It has had a remarkable growth. Nearly one-fourth of a million men and women have been present, during the last five years, at the gatherings held under the direction of the Extension Division.

Professor L. A. Merrill, who took charge of this work five years ago, was in every particular the man for the position. His services to the State were of the very best, and entitle him to the gratitude of all who are interested in the development of Utah. It was with great regret that Professor Merrill's resignation was accepted to permit him to go into other work which he thought would be more satisfying to him. The Division has been reorganized, somewhat enlarged, with headquarters at Logan, and the extension work, based on the experiences of the past, will go on with increasing vigor. The College conceives its duty to be well done only when it helps to its fullest power every person in the State who needs help.

The recent progress in Agriculture and allied subjects is due largely to the discovery of new facts, and new applications of old facts, that have gone on unceasingly during the last two decades. The Agricultural Experiment Stations The Experiment Station. organized under Federal authority in 1889, have been the chief agents in doing this work, on which the modern science of agriculture now rests securely. The experiment station of an agricultural college represents the highest type of work done by the institution. As its work is done so will the science and practice of agricul-

ture be. The State should recognize the high importance of this work. In Utah the chief concern of the Station has been to apply the laws of science to the special needs of an arid and semi-arid region like Utah. The science of agriculture was established in countries of abundant rainfall, where irrigation and dry-farming were unknown, and for that reason the work of our Utah Station, which has always given Utah needs first consideration, has been of highest importance. The work of the Station has been eminently successful in helping to establish a science of agriculture for countries that must produce crops by dry-farming and irrigation. The reputation of the Utah Agricultural Experiment Station should make every Utah citizen proud. Money appropriated for experimental work always brings great results; and the State should give careful attention to the requests made by the Station officers. Your special attention is called to the report of the Director of the Station, herewith appended.

The causes of the success of the Utah Agricultural College during the last few years are, unquestionably, The Causes of its policy of service, the union and high schol- the Success. arship of the Faculty, and the quality and loyalty of the Student Body.

The policy of the Institution has been outlined over and over again before the people of this State in numerous public addresses, some of which have been collected in a separate pamphlet, to show the people that the College is consistently pursuing its policy of service in the industrial field.

It is quite impossible to say too much in praise of the teachers of this Institution, who, because of their faithful and efficient labors, have made the success of the last Faculty Help. few years possible. Though the Faculty has now grown to such proportions that it is difficult for any one man to maintain intimate friendships with all the other men on the Faculty, yet there is a remarkable unity in all faculty matters. This is due to the tremendously vitalizing power of the policy of the College, in which they are all believers. The scholarship of the Faculty has already been mentioned and is unquestionably of the highest.

The students who assemble at the Agricultural College come from every county and almost every village of the State.

Some come also from the surrounding states and a few from foreign countries. They are the sons and daughters of the masses of the people who believe in the new education, which has for its purpose the dignifying of all manner of honest labor. The students of the College are devoted, earnest, clean young men and women, who give themselves, with all their might, to the special work of preparing themselves for their chosen life pursuit. The loyalty of the Student Body of the Agricultural College has become proverbial, and it shows no signs of diminution. Our students stand shoulder to shoulder in behalf of any movement having for its purpose the upbuilding of their beloved College. It is a great pleasure to say these words of truth about the splendid Student Body, which assembles from year to year in the halls of the Agricultural College.

Then, the people of the State have, of late, become better acquainted with the aims, motives and actual work of the College, due to the enlargement of the extension idea, by which thousands of men and women throughout the State have been partakers of the benefits of the College. This closer acquaintanceship has given us more sympathetic friendship than ever before.

The increased attendance, especially of students of college grade; the greater demands made by the State for extension work, and the general onward movement of industrial education, make it clear that the College today, as never before, is in need of help from the State. It is useless to enumerate all our needs. We can only hope to have the pressing ones receive consideration. The conservative reports from the directors of schools and the heads of departments appended to this report will show the many urgent needs of the College. As we are working under the mill tax law for general maintenance, no reference need be made to matters covered by this appropriation. We hope to be as successful as in the past in avoiding any deficit not allowed by the State.

Our greatest need is for more room for the accommodation of classes and laboratories. It is now impossible to house with comfort and for efficient work, all the registered students. When the winter students come, we shall be overcrowded. A new building is greatly needed to relieve the congestion in the

buildings now used, and to enable some of the departments, which are almost homeless, to do their work properly.

Chemistry is one of the fundamental sciences in agriculture, home economics and in any well balanced education. The department of chemistry is the largest science department of the College and Experiment Station. For nearly twenty years it has occupied its present temporary quarters, latterly to the great discomfort of both students and instructors. During the last few years temporary use, for chemical purposes, has been made of rooms needed for other purposes in other buildings. The equipment of the laboratories is out of date and therefore quite unsatisfactory. There is, further, a constant danger of fire in chemical laboratories. The present laboratories are in the main building, which is far from being fire-proof. This condition of things ought not to be maintained any longer, in the Utah Agricultural College. We ask, therefore, that an appropriation be made, sufficiently large, to build and equip in part a fire-proof building for agricultural chemistry. For a few years this building could be made to contain in addition to all the College and Station chemistry, the departments of physics and bacteriology. The removal of the chemical and physical laboratories from the main building would leave some room for the added number of students and would also provide room for several departments which are now without permanent quarters. The department of horticulture for instance, representing one of the most important industries of the State, could then at last be given laboratory and class room space, which it has not as yet had. The departments of animal husbandry and veterinary science, and the extension division, also, might then secure the beginnings of permanent homes. Unless this building be granted the work of the College will be seriously handicapped. A fairly satisfactory building for this purpose could be constructed for about \$65,000.

The College dairy, run throughout the year for the purpose of giving instruction in butter and cheese making, has been in its present temporary quarters nearly twenty years. It is in a basement, facing the College Dairy. north, where it receives no sunshine, and where it is almost impossible to maintain a dairy according to modern sanitary regulations. It is almost a crime to permit our thousands of students and visitors to inspect this dairy, as the only

official instructional dairy maintained by the State. The State Food and Dairy Commissioner has condemned it.

In the interest of the development of dairying in the State, which probably will become the most important of our agricultural activities, the Agricultural College should be given a small, but thoroughly up-to-date dairy-building, in which the most modern methods of handling and keeping milk, and of manufacturing butter and cheese can be demonstrated. Such a building with the equipment, including a small refrigerating plant, could be constructed for about \$20,000. The good results that would flow from the existence and use of such a building would make it a very profitable investment. We ask that this appropriation be made.

The serious condition of the roof of the Mechanic Arts Building was mentioned in the report of two years ago. The walls of the building are in danger from the leaky condition of the roof. A new roof must be provided to protect the walls from decay. When a new roof is put on the building, the two front wings should be raised one story, in accordance with the original plan, to furnish more room for mechanic arts and agricultural engineering. When a new roof is constructed, the extra cost of raising the walls will be less than \$2,000.00. Competent builders estimate that the cost of the new roof and the raising of the walls will not exceed \$9,000.00.

The growth of the courses in farm machinery, organized only two years ago, but of great importance in the training of men for farm life, has brought about a new need. The implement dealers have generously placed at our disposal samples of their machines to be used by the students. Agricultural machinery, however, takes up much room, which the College does not possess, and consequently, we have not been able to avail ourselves of the offers of the manufacturers of agricultural implements. We ask, therefore, that the beginnings of a farm machinery building be made, by an appropriation for the construction of a cheap building in which the machines can be housed, and which is sufficiently protected to allow students to work there throughout the winter season. Such a building, which would be a walled-in shed, could probably be constructed for about \$2,500.

The capacity of the heating plant has long been too small

for the needs of the College buildings. Moreover, it is old-fashioned, and so wasteful as to impose much unnecessary expense upon the State. The completion of the

New Heating Plant. Thomas Smart Gymnasium made necessary further heating capacity. The old plant did not have the capacity to take care of this building, and further was so placed that it could not be connected with the Gymnasium. It was first planned to build a temporary heating plant for the new building, but in view of the condition of the old plant, it was decided to begin the construction of a plant that could be extended to serve the whole College. This decision was taken after the State officials had given their approval and had authorized a small deficit for the purpose. The new plant is one of the best planned in the State. It has been so arranged that it may be extended to care for the College under any reasonable growth for fifty to one hundred years. The annual saving in the fuel bill will be nearly \$2,000.00 from the beginning, and, naturally, will increase as the Institution grows. When completed it will cost about \$28,000.00. We ask that this be provided as early as possible, as the deficit is carried by our local bank.

We ask then that the coming State Legislature provide for the Utah Agricultural College:

	Agricultural Chemistry Building.....	\$65,000
Summary of	Dairy Building and Equipment.....	20,000
Needs.	New Roof for the Mechanic Arts	
.	Building	9,000
Shed for Farm Machinery.....		2,500
Total		<hr/> \$96,500

We further ask for an appropriation for the new heating plant, already partly constructed, of \$28,000.

The granting of these items will help materially in improving the work of the College, and should result in smaller requests hereafter.

It is, finally, a pleasure to acknowledge, gratefully, the steady, sympathetic and intelligent help given the College by its Board of Trustees, the Governor of the State and all the State officials. The support of all these individuals has made possible the success enjoyed by the Utah Agricultural College.

Conclusion.

The economic future of the nation is in a large measure committed to the sisterhood of agricultural colleges. By the discovery of new truth and by the orderly application of all truths to the necessary pursuits of the people, new life may be given to all industrial movements. It is the business of the Utah Agricultural College to do this, as far as the law permits, for the State of Utah. We feel a pride in the work, and a desire to keep fully abreast of the best thought, so that our work may be well done.

We shall be pleased to lay before the members of the Legislature, and all citizens who may be interested, the policy of the College in conducting the work, and the results that already have been obtained. The Agricultural College has been of great service; its directly practical results, alone, reduced to dollars and cents show that it is paying back to the State each year many times the cost of maintaining it. In directing our educational ideals into more useful fields, by accepting the modern ideas of industrial education, the Agricultural College has been the unquestioned leader in the State. All in all it has probably done all that could reasonably be expected of it.

It is important to the State that the College be allowed to continue unhindered in its cause of service and that it be made able to meet the greater demands made upon it by a growing State.

Very respectfully,

JOHN A. WIDTSOE,
President.

Departments of Instruction.

THE SCHOOL OF AGRICULTURE.

To the President of the College:

Sir:—The School of Agriculture has continued to increase in numbers during the past two years, and, although the entrance requirement for the College course has been raised one year during this time, with the consequent elimination of the Freshman class last year, the total number of College students has increased even beyond expectations. A summary of the enrollment by classes and courses at the end of the fifth week for the past eight years is appended.

FIFTH WEEK SUMMARY.

Agricultural Students.

YEAR	Total Stud.	1st.	2nd.	3rd.	Total Prep.	Fr.	Soph.	Jr.	Sr.	Total Coll.
1905....	85	37	21	..	58	16	5	3	..	26
1906....	78	23	19	..	47	18	5	2	2	31
1907....	122	29	21	..	53	39	15	10	2	70
1908....	181	54	35	..	93	29	31	14	9	88
1909....	207	48	44	..	93	34	24	32	17	114
1910....	226	44	50	..	94	36	28	24	44	132
1911....	237	52	39	32	123	(10)	33	44	26	114
1912....	254	44	45	27	114	24	38	29	49	140

From this, it will be seen that the total number of preparatory students has not increased during the past five years except as the result of the temporary increase due to the addition of another year requirement. By comparing the number entering the first year it will be noticed that the highest record ever reached in the Institution was five years ago, and since that time there has been a material falling off, thus showing

that the need of the Institution to do preparatory work is lessening. Even with the increase in entrance requirements, the number of students entering the upper classes from other institutions continues to keep their numbers above those of the Freshman class. In proportion to the population of the State, there are more students registered in Agriculture in the Utah Agricultural College than in any other similar institution in America, there being at the present time one student for a little less than 1,500 in population, and we shall have more than one graduate in Agriculture for every 10,000 of population.

The Agricultural Faculty has been increased in numbers and greatly strengthened by the addition of a large number of men with advanced training, the number of men on the staff holding the Doctor's degree having been more than doubled in that time. The faculty are energetic, enthusiastic in their work, and in harmony with the spirit of the institution.

The increase in numbers in the students in advanced courses makes it imperative that a still larger force of instructors be employed so that the heads of departments shall be able to give more time to the teaching of advanced classes and encouraging the research work of advanced students. As the standard of the institution has been raised, it is now possible to require more time in research before graduation and with a large number of seniors, this becomes a serious problem to arrange and encourage under the present crowded conditions of the teaching force.

The increase in salaries made to the heads of departments and to the higher assistants and associates has enabled the school to retain the heads of departments, with one exception, and to obtain much better qualified men for the new positions. It will, however, be necessary to continue the policy of increasing the salaries, as the salary scale of our sister institutions is being even more rapidly increased, and due to the immense activity in all agricultural lines, the supply of available men is limited and it is very difficult at the present time to replace a department head with a properly qualified man on the present salary basis.

The greatest handicap for the work in Agriculture at the present time is, however, the want of room for class and laboratory work. The elementary work in chemistry has increased in numbers to such an extent that it is almost impossible to accommodate them with the present facilities of the chemical

laboratory, with the result that laboratory work has had to be abandoned in advanced classes and even now it is practically impossible to arrange schedules so as to accommodate the laboratory work of even the first course. In the same way conditions are becoming seriously congested in the laboratories in bacteriology, plant physiology, agronomy, and horticulture. A building large enough to accommodate the Department of Chemistry, Bacteriology, and probably one other department at this time, which could be transferred as these departments required additional space, would provide for the present needs of the School of Agriculture. A hundred thousand dollars would construct one wing of a future Agricultural Building which would meet these requirements. The Dairy Department, at present housed in a very unsanitary basement, is becoming more and more important in its relation to the up-building of our State. A sanitary and up-to-date building large enough to provide adequate laboratory facilities for strong dairy courses should be immediately provided. The dairy industry of the State is growing by leaps and bounds and provision should be made to train men to take up and encourage this line of work.

The Agronomy Department is much handicapped by lack of a modern vegetation house in which class work in plant propagation in the winter time could be carried on, where many of the research problems of advanced students could be undertaken and where many lines of experimental work which are now impossible on account of lack of this facility could be undertaken. The Irrigation Department also requires in its experimental work the same provision. Many problems connected with the Entomological Department should have insectary facilities and the Plant Pathology Department cannot undertake many of the problems confronting it until some adequate provision is made for continuous cultivation of disease resisting organisms on their respective hosts. It will probably be impossible at the present time to meet all these requirements with separate buildings, but if one moderate sized structure, costing from \$7,000 to \$8,000 could be erected and divided by temporary partitions into separate rooms, these could be assigned to the different departments as required and would go far towards relieving the present difficulty.

Another very pressing need of the Institution is the increase in the amount of apparatus available for advanced

students. In the olden days, when there were from three to five advanced students in a department, the present equipment was adequate. At the present time, however, twenty to thirty students are found majoring in a single department and it is almost impossible with the present meagre amount of laboratory apparatus to accommodate them all without serious loss of time.

Provision should be made in the budget for the purchase of a considerable number of animals for the livestock department. The livestock industry of the State is building up rapidly and has been much encouraged by the work of the Animal Husbandry Department. If, however, that department is to keep abreast of the State's development, a still higher grade of animals must be purchased and a large number of the poorer ones in the department weeded out and sold. It is hardly consistent in the institution to retain animals in its own herd that it is constantly advising farmers to weed out from their herds and dispose of. By this method, also, the cost of maintaining this department can be materially reduced in the future, as the better the class of stock kept, the greater the returns in proportion to the expense of maintenance. At the present time there is a number of animals which are not paying for their feed alone and these should be eliminated at once.

Provision should be made for a larger amount of poultry work and for more advanced courses. The poultry industry of the nation is increasing and more and more of our schools and stations are taking up work along this line. The call for trained men in this line is far greater than the supply and will continue to be so for a number of years at least. There is no better opportunity for a young man at present than is offered by the poultry industry, and as the Experiment Station has done an immense amount of valuable work in this line which is available to students of the Institution, it seems important to provide adequate facilities for students who may desire to obtain the benefits of this material.

As mentioned in the last report, it is desirable that the roads around the barns and pastures be improved and reconstructed along the lines of the permanent development of the campus. A few thousand dollars expended in good roads and fences would add very materially to the attractiveness of the grounds and the availability to the general public of the many sources of agricultural information existing in the Institution.

It is gratifying to be able to record the present prosperous and harmonious condition of the School of Agriculture, and to feel that but little change need be made in the policy and requirements of the course to keep it in harmony with the present trend of agricultural development throughout the country. The graduates of the school are meeting with wonderful success in their work and they are everywhere spoken of in the highest terms of commendation. The troubles and shortcomings of the school are those incident to rapid growth and expansion and are rather indications of a healthy condition than otherwise. The call for agricultural workers is greater throughout the entire land than the present supply and with only the developments now in sight, the demand of the future is certain to be even greater than that at present, so that the future for the agricultural graduate is of the brightest and justifies the school in making every attempt possible to encourage the enrollment of students and the increasing of the facilities to afford them adequate training.

* Respectfully submitted,

E. D. BALL,

Director of the School of Agriculture.

SCHOOL OF HOME ECONOMICS.

To the President of the College:

Sir:—In the year 1910-11 the Home Economics department offered a four year college course in domestic science and art, leading to a B. S. degree, and a three year manual training course. Following is an outline of the courses in Home Economics offered each year, and the number of students in each course:

COURSES AND ATTENDANCE.

COLLEGE COURSE.

Course.	1910-11. Number of Students.
Freshman Year.	
Food and its Manufacture.....	33
Sophomore Year.	
House Construction and Sanitation 7.....	11
Food Materials 10.....	19
Household Art 8.....	12

Junior Year.

Dietetics and Nutrition 11.....	11
Advanced Dressmaking 11.....	16

Senior Year.

Advanced Foods 12.....	2
Household Administration 9.....	3
Teachers' course in Home Economics 13.....	7

MANUAL TRAINING COURSE.

First Year.

Food and Sanitation.....	64
Plain Sewing	40

Second Year.

Home Sanitation	17
House Decoration and Management.....	19
Dressmaking	31

Third Year.

Home Care of Sick }	18
Personal Hygiene }	
Laundering }	
Applied Art	29
Millinery	15

In 1911-12 a separate art course leading to a B. S. degree and a four year high school course were established. The work this year is the same as that offered in 1911-12.

COLLEGE COURSE IN DOMESTIC SCIENCE.

Course.	1911-12 1912-13	
	Number of Students. (Oct. 25th)	
Freshman Year.		
Preparation of Food 4.....\.....	35	24
Sophomore Year.		
House Construction 7.....	12	18
Foods 10	17	6
Junior Year.		
Advanced Dressmaking 11.....	32	26
Dietetics and Nutrition 11.....	9	14
Senior Year.		
Household Administration 9.....	16	8
Textiles, D. A. 14.....	2	4
Teacher's Course in Methods 13.....	8	11

COLLEGE COURSE IN DOMESTIC ART.

Freshman Year.

Preparation of Food.....	35*	24*
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Sophomore Year.

House Construction 7.....	12*	18*
Advanced Dressmaking	32*	26*

Junior Year.

Textiles	2*	4*
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Senior Year.

Household Administration 9.....	16*	8*
Designing and Modeling 16.....	2	5
Teacher's Course	8	11

HOME ECONOMICS HIGH SCHOOL COURSE.

First Year.

Plain Sewing	53	50
Sanitation and Food.....	64	65

Second Year.

Dressmaking	46	48
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Third Year.

Home Sanitation	24	17
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Fourth Year.

(Four credits in any of the following subjects:)

Selection and Preparation of Food.....	35*	24*
Home Care of the Sick, Personal Hygiene }		
Laundering }	14	not given
Art Needle Work.....	22	31
Millinery	18	9

The apparent decrease in students this year in certain courses is due to the fact that the short course students have not yet registered.

Miscellaneous Work. In addition to the actual instructional work, the department has assisted with three housekeepers' conferences, held February, 1911; June, 1911, and February, 1912. A small amount of experimental work has been done on yeast and bread, flour and cornmeal. There is great need in Home Economics for this sort of work and we feel the time is not far distant when any school which does not

*Duplicate registration.

make the proper allowance for it will not be living up to one of its greatest opportunities.

Desirable New Course and Buildings, etc. There is now sufficient demand in the State to warrant the establishment of a course in Institutional Management. We suggest that one thousand dollars would be a sufficient sum with which to equip the fourth floor of the Woman's Building for this work. An additional teacher will be necessary if this course is established.

Fifteen thousand dollars to build and furnish a model house will soon be a necessity if we are going to meet the needs in the State for Home Economic work. We have an excellent, well equipped building in which to train the girls in the various phases of home-making; now, we need a house where the students can actually live, take the responsibility of the household as a whole, and correlate the work.

The teacher of Institutional Management could also assume charge of the model house with the help of one assistant.

A permanent exhibit of labor-saving devices and household appliances would do much to acquaint our many visitors with the best along this line, and also with the nature of our work. A sum of five hundred dollars would enable us to make a good beginning in this line.

A piece of statuary for the hall on the first floor of the Woman's Building and two pictures for the lecture rooms would add greatly to the building, and would be very much appreciated by the students. One hundred and fifty dollars would cover the cost of these.

We wish to express our appreciation both to the President and the Board of Trustees for the loyal support which we have received in the past.

Respectfully submitted,

FLORENCE B. BATCHELOR,

Director of the School of Home Economics.

December 9, 1912.

THE SCHOOL OF AGRICULTURAL ENGINEERING AND MECHANIC ARTS.

To the President of the College:

Sir:—The work in the Schools of Agricultural Engineering and Mechanic Arts has been closely connected and under one head, so the report of the two will be given together.

Prof. W. S. Drew, Director of the School of Mechanic Arts, and Acting Director of the School of Agricultural Engineering, was in charge of the work till July 1, 1912, when he was given a leave of absence. Up to this time, the schools were considered as a single department in conducting business. On the above date, the writer was made Director of the School of Agricultural Engineering with supervision of the work in Mechanic Arts, and the scope of the work was enlarged. The schools were organized into separate departments, there being seven departments in Agricultural Engineering and three in Mechanic Arts.

The departments of Agricultural Engineering are the following: (1) Irrigation and Drainage; (2) Farm Mechanics; (3) Agricultural Surveying; (4) Rural Roads; (5) Rural Architecture; (6) Rural Sanitation; and (7) Agricultural Technology. These departments each offer from four to nine courses. In Mechanic Arts, there are departments of Woodwork, Forging and Carriage Making, and Machine Work and Mechanical Drawing.

The personnel of these departments is as follows: Dr. F. S. Harris and Prof. J. W. Jensen, Irrigation and Drainage; Prof. Wm. Peterson, Rural Roads; Dr. F. L. West and Mr. LeGrande Humpherys, Farm Mechanics; Dr. E. G. Peterson, Rural Sanitation; Prof. C. W. Porter, Agricultural Technology; Prof. R. B. West, Agricultural Surveying; Prof. A. J. Hansen, Woodwork; Mr. E. P. Pulley, Machine Work and Mechanical Drawing; and Mr. Aaron Dewey, Forging and Carriage Making. The department of Rural Architecture is without a head, but the required work is being done by other members of the staff.

With this strong faculty, the instruction is in good hands and the departments cannot fail to gain rapidly the popularity which their subject matter demands. The quality of work done is first-class, and the men who take the courses find themselves able to compete with advantages when they get out into practical life.

The number of students registered in the schools has been as follows:

Enrollment.		Mechanic	Agricultural
		Arts.	Engineering.
	1909-10	109	...
	1910-11	128	...
1911-12		62	15
1912-13 (up to Nov. 15)		83	27

This enrollment by no means represents the activity of the schools, since the courses offered are filled with students who are registered in other schools of the College.

Since the Agricultural Engineering work in its present form is new, it has not had opportunity to gather the equipment which is absolutely necessary for good work. Its needs, therefore, are very numerous.

As stated above, the Department of Rural Architecture is at present without a head, and sufficient money should be set aside to secure the services of a first-class man to fill this vacancy. There are already this year double the number of students registered in Agricultural Engineering that were registered altogether last year. If anything like this increase continues, the instruction staff of each department will have to be decidedly strengthened.

The Mechanic Arts work is hampered by not having suitable class rooms convenient to the shops. This difficulty could be largely overcome by adding the second story to the shops, according to the original plans. The instructors should also have offices fitted up where they can keep their records and transact the necessary business.

One of the most pressing needs of the entire College is for an Agricultural Engineering Building where all the work can be brought together in suitable laboratories and class rooms. At present, it is scattered throughout the various buildings, and the laboratories and equipment of other departments have to be used almost entirely. Thus, the Irrigation and Drainage has to be housed with the Agronomy Department, the Farm Mechanics with Physics and Mechanic Arts, the Rural Roads with Geology, the Rural Sanitation with Bacteriology, and the Agricultural Technology with the Department of Chemistry. If a special building could be had, all of these visiting departments could have laboratories of their own which would be more effective than the present borrowed quarters.

If the main building is delayed it is imperative that certain provisions be made. It will be necessary to put up a temporary building for the work in Farm Mechanics. A number of companies have offered us machinery worth many thousands of dollars to be used in instructional and experimental work, but we are unable to accept these offers as there is no place to care for the machinery. For the sake of a few dollars, the value of much money is lost to us. A laboratory for the work in Agricultural Technology is very necessary. It will probably be some time before the College will be able to have plants for the manufacturing of all kinds of farm products available for student use and experimental purposes; but a laboratory should be provided at once where the principles underlying manufacturing processes can be studied.

It would be very desirable if some of the manufacturers of the State could be induced to establish fellowships at the College for research along their respective lines.

The Department of Rural Roads is in need of a laboratory in which to test the various road materials. Hundreds of thousands of dollars are being spent annually in the State on roads, and still very little real experimental work is being done on the subject. Means should be provided whereby the department could do considerable outside work, even though this kind of work is expensive.

Irrigation will always be an important phase of the agriculture of the State, and more adequate means for its study should be at the disposal of the students. A properly constructed Agricultural Engineering building would supply this need.

The various other departments all have their own specific needs which can largely be met by a liberal annual allowance for equipment and supplies.

The building of a rural civilization so that life in the open country will be adequate to the needs of modern man is fast being recognized as a complex problem. The old idea that a knowledge of crops and livestock is sufficient for the man on the farm is decidedly out of date. There are numerous other questions connected with his daily life which he needs technical training to answer if he is to be on a par with the man in the city. Questions of the layout of the farm and farmstead, the planning and con-

struction of suitable farm buildings, the making and up-keep of roads, the converting of raw materials of the farm into finished products, the proper handling of the machinery on the farm, the methods of making the farm environment sanitary, the questions of water supply and use for irrigation, and numerous other problems connected with rural life must be met fairly and squarely by men who have proper training. This training can best be had at institutions having men prepared to give it as other technical training is given.

The schools of Agricultural Engineering and Mechanic Arts have for their field the training of men to meet such problems as those named above. These questions are not so much connected with the productivity of the individual farm as with the conditions of the rural community taken as a whole.

In the past, the technical engineer from the city was called in to give his assistance in these problems, but he usually had very little sympathy with the farmer and his work, and the farmer did not understand the engineer, so the harmony necessary for the best work did not exist. It is hoped that the new subject of Agricultural Engineering will largely bridge this gap between the old time farmer and the over-technical engineer who was trained for city problems.

The outlook for this kind of work is indeed promising. As yet it is only in its infancy. Every day the need of such training becomes more apparent and every day the demand for men is more insistent. The demand for men in practical work is so great that it is almost impossible to get men who are properly prepared to do the teaching. So far, courses along these lines have not been as well organized as in some of the older branches, but they are rapidly becoming more coherent and stable and hence more valuable. As these courses become perfected and as capable men go into this work, wonderful results in improving country life may be expected.

Respectfully submitted,

FRANK S. HARRIS,
Director of the School of Agricultural Engineering.

THE SCHOOL OF COMMERCE.

To the President of the College:

Sir:—In my last report I said that, "The needs of the State seem to demand that the School of Commerce of the Agricultural College of Utah maintain a short course in Commerce for the training of business managers and captains of industries." I feel it is as true now as it was then.

In recent years business education in the broadest sense of the term, including economics and kindred subjects, has received considerable attention. It is realized more and more that such an education is essential to all persons who have to do with the practical affairs of life, whether they are engaged in Agriculture, Home Economics, or business in the more restricted sense. To the average man it is not sufficient to know how to raise animals and produce crops, but it is also necessary to know how to do it with financial success. So important is this that I venture to predict that within the immediate future business education will form a much larger part of the training of students of agricultural colleges.

I cannot too strongly urge the need of economic surveys of the State. If properly conducted, they would furnish a fund of information greatly needed, as to the profitable size of the farm, the amount of machinery necessary, the number of animals to be retained, etc. Few farmers possess this practical information. When the work is undertaken it will be necessary to provide sufficient funds to employ properly trained persons. Information obtained by poorly trained economists would be worse than useless.

The School of Commerce is desirous of bringing its students in closer contact with men of actual business experience by means of a series of lectures. To do this it will require a small fund to pay the actual expenses of some of the leading business men of the State who are willing to give their services.

The work in Social Science is increasing and the demand is such as to make the addition of another instructor desirable. There is considerable call for both economics and sociology outside of the school, and so far as I can see, there is no good reason why this need should not be met as well as developed. It would seem that to supply education to serious men and women who cannot affiliate themselves with institutions of

learning would be the proper function of a college such as this.

Stenography should be made a college subject open to the students in the School of Commerce. Nearly all our graduates need it when they go out to secure positions. It is impossible to secure proper preparation through correspondence or at a so-called business college in one summer.

The School of Commerce is in need of additional class rooms. It was hoped that a permanent adjustment could have been made this year, but so far it has been impossible.

Number in the School of Commerce:

1909-10	138
1910-11	135
1911-12	163
1912-13 (to date)	156
Seniors	6
Juniors	7
Sophomores	7
Freshmen	17
Third Year	26
Second Year	34
First Year	59

Enrollment in Classes:

Economics 1	20
Economics 2	71
Economics 4	47
Economics 5	15
Economics 6	4
Economics 8	13
Economics 11	15
Economics 12	21
Economics 12 (Extension)	14
Economics (Correspondence)	13
Accounting 1	31
Accounting (Winter Course)	22
Accounting 2	11
Accounting 3	4
Accounting 4	17
Accounting 5	4

Stenography 1	40
Stenography 2	8
Stenography 3	6
Typewriting 1	93
Typewriting 2	36
Business Correspondence and Spelling.	62
Commercial Arithmetic	58

Respectfully submitted,

GEORGE THOMAS,

Director of the School of Commerce.

December 9, 1912.

THE SCHOOL OF GENERAL SCIENCE.

To the President of the College:

Sir:—During the School year of 1910-11 there were registered in the School of General Science 73 students, 45 being of college grade and 28 of high school grade. There were 6 graduates.

In 1911-12 there were 148 students registered, 92 of college grade and 56 of high school grade; 11 students graduated with degrees.

To date, October 15th, of the present year, there are registered 116 students, 92 of college grade and 24 of high school grade; 34 of the 116 students registered are Seniors, and will undoubtedly graduate in June of this school year.

It will be noticed that there has been a material growth in the number of college students, especially in the senior year.

The work of the students in the School of General Science is largely elective after the Freshman year. For this reason there is little extra expense in taking care of these students, except where additional sections must be organized to accommodate the increased number of students.

The students registered in the School of General Science are almost without exception, earnest, ambitious young men and women who do their work well.

Respectfully submitted,

J. W. JENSEN,

Director of the School of General Science.

October 15, 1912.

EXPERIMENT STATION.

To the President of the College:

Sir:—The work of the Utah Experiment Station is mainly supported by funds received from the Federal Government and from appropriations made by the State. The State funds are appropriated for the carrying on of specific lines of work, while the Federal funds may be used, within certain restrictions, for the investigation of any of the agricultural problems of the region. The work under both funds has been vigorously prosecuted during the past biennium and many notable and important results have been obtained. Taking up the work done under State funds first, some of the more striking of these results will be enumerated.

Investigations in irrigation have been carried on in co-operation with the U. S. Department of Agriculture for a number of years, the Department appropriating an equal sum with that supplied by the State. Irrigation Investigations. up to \$10,000 for the biennial period. The greater part of the results of the work of previous years have been brought together through the generous assistance of Dr. Widtsoe and published in Bulletins 115-120. In this series of bulletins is brought out an immense number of facts which will be of inestimable value in developing a more rational system of using irrigation water. These bulletins being more or less technical in nature, owing to the immense amount of data to be submitted, have been published in limited editions and will be followed by a popular bulletin which will embrace the practical application of these facts to western agriculture and which will be mailed to everyone desiring it.

These bulletins summarize the work up to the beginning of the past biennial period. During that time, the work in irrigation has consisted of experiments on field crops carried on on the Greenville farm, and on peaches carried on in the orchards of Valentine Brothers and W. G. Knudson at Brigham City. The peach investigation will require a series of years before the full effect of variation in irrigation water can be ascertained. Studies in the variation of amount of water applied, the time of application, and the distribution of the irrigations throughout the season, will be made. It has already been demonstrated that fruit production can be entirely

prevented by variations in the amount of water, either by the use of too little or too much. Light irrigations in the beginning of the season, followed by heavy ones, produced the largest crops of high quality fruit, while the same amount of water used with heavy applications first and lighter ones following resulted in poor fruit or none at all. It has also been proved possible to vary the quality of fruit, its keeping quality, and even the relative proportion of stone and flesh. These investigations will be continued until the fundamental facts underlying the application of water to fruit trees have been ascertained.

On the Greenville farm methods of securing greater yields with the same amount of water and methods of increasing the area to be irrigated by the same amount of water are being continued. A new series of experiments intended to test the effect of fertility on the water requirement of soils has been inaugurated. It has already been demonstrated that the more fertile the soil the more economical the plant in its use of water, and, what is more important, that there is a marked economy in the use of plant foods from the soil.

These have been continued along the lines originally planned and which were summarized in Bulletin 112, which gave the results up to the end of the previous biennial period.

Since that time, two of the stations have been discontinued as having served their purpose in the investigation, and two others have been started; one in Cedar Valley, where there is a large area of land in which there is need of further investigation to find the best methods of developing; and another near Ajax, in which attempt is made to ascertain the value of shad scale soils for dry farming purposes. Still another farm will be established as soon as possible near Kanab.

There are immense areas of shad scale soil in the State and it has been hoped that it will be found possible to use the better class of these in dry farm work. No method has so far been found to insure crop production under these conditions, but the work of investigation will go on at Ajax and some method may be found whereby such soils may become useful.

Through co-operation with the Bureau of Plant Industry of the U. S. Department of Agriculture, the work of the Nephi farm has been increased in amount and scope. Some 150 varieties of dry-farm grain have been tested on this station for-

a number of years, the better ones selected and on some of these selected plots still further selections of choice individuals made, with the result that the yielding power of these varieties has already been considerably increased. There will be a considerable amount of this selected material available for distribution to representative farmers for further testing in the near future. Besides testing the winter grains, a number of other crops and systems of rotations are being tried out in the hope of developing a better system of agriculture than that employed at present on most of the dry farming areas. The work already accomplished in dry farming has served to increase the productive area of the State by an immense amount. There are, however, many problems connected with the development of different areas which still demand solution, and many types of soil which under present methods are not available which it may be possible to use when knowledge of the underlying principles of this subject are more thoroughly understood.

The testing of the milling quality of the different wheats of the State has been continued and as a result of the findings of the Chemical Department, the millers of the State, together with the Experiment Station and Extension Division, have taken up a propaganda for the raising of Turkey wheat which has been found to be the most valuable bread making variety. As a result of this campaign, Turkey wheat is now commanding a premium on our markets, and the mills which were formerly idle for the greater part of the time are now running to capacity. The bakers of the State who formerly imported all of their flour from Kansas are now using the home grown article and the demand for the Utah flour is greater than the present supply.

A study has also been made by the Chemical Department of the nitrogen and humus content of dry land soils and it has been found that they do not decrease in amount either under continuous cropping or fallow system of dry farming. These investigations have been made in all of the larger dry farming districts, embracing fields that have been in use from ten to forty years, and show that we may expect these fields to continue to yield as good crops as at present for a long time to come. These results are strikingly different from those reported from the humid regions and go to show the greater value of the arid soils.

As an outgrowth of the milling investigations, a new

method of determining gliadin content of wheats has been worked out by the Chemical Department with the result that it has been possible to make determinations of the value of different wheats from five to seven times as rapidly as by the method previously employed. Another result of this work has been the discovery of a ratio whereby it is possible to ascertain the nitrogen content of the flour, bran, and shorts by simply analyzing the wheat kernel, thus saving an immense amount of time and labor in testing the value of the wheat varieties.

Another investigation growing out of the milling qualities of wheat has been a study of the effect of the combined harvester on the milling value of the wheat, in which it is shown conclusively that the use of this machine does not alter the value of the flour as has been previously contended.

The work on this farm has been continued and in accordance with the provisions of the law has been extended to include co-operative work in different sections of the valley. The work of summarizing the results of the seven years of testing varieties of fruits of the Southern Experiment Farm. has been nearly completed and will be published in the near future.

The commercial plantings of grapes and peaches are beginning to bear and experimental work in pruning of grapes and summer pruning and thinning of peaches has already been undertaken on the farm, together with similar tests in co-operation with other orchardists and vineyardists in the valley. A marked difference due to the different methods of pruning has already developed. An extensive test of the different cover crops, suitable to this region, have been undertaken in the peach orchard and in the grape vineyard. The most successful of these crops have been Soy beans, cowpeas, and vetches. These will be continued for a number of years to show their value in returning fertility to these sandy soils and it is also planned to test their value as a commercial crop for seed production.

Peanuts and sweet potatoes are being tested on the farm and both of them promise to develop into commercial industries in this region.

The work against the weevil in co-operation with the Bureau of Entomology of the Department of Agriculture has been carried on with vigor through the period.

Alfalfa As a result of field investigations on methods
Weevil. of handling the crop so as to avoid as much
damage as possible from the weevil, some

striking results have been obtained in Utah and Davis counties the past season. In some cases, fields have yielded larger crops of alfalfa than have been produced for many years before the advent of the weevils into the district and as a result the farmers are very much encouraged in their fight against this pest. It is, however, spreading rapidly into new localities and this method of demonstrating the possibilities of combatting it should be carried to the farmers of each district in which the weevil has appeared. A search for better methods of control should also be continued. The entire history of the insect, together with all work up to the close of the past biennium, was published in Bulletin 110. A report of the work of the present biennium is now in preparation.

Co-operative experimental work and field demonstration work with the new settlers in the Uinta Reservation district have been carried on for the past two years and a number of striking results obtained. The people of this district seem to be very appreciative of this work and anxious for its continuation. It had been planned to take up similar work in the Millard County district, but lack of a suitable person to take up the work has prevented its inauguration. This work should be taken up as soon as possible.

A co-operative cow testing association at Richmond has been organized and carried on for the past two years and has resulted in much good to the dairy interests of the State. Cows were found in almost every herd that were scarcely paying expenses, while others yielding profits of from \$75 to \$100 per year are not uncommon. As the result of the first year of this testing work, many of the poorer cows were weeded out and a number of carloads of better stock brought in from eastern sections. This process of improvement is still being continued so that at the present time the average of the cows of this milk testing association is above 250 pounds of butter fat per year, while a large number of them produce from 300 to over 450 pounds. The results of this work have been so marked and so encouraging that an effort should be made to start one or two more associations in the near future.

Owing to the troubles of the publishing firm, there was a delay of a number of months in publishing bulletins. Eleven bulletins and three circulars have, however, been issued since the preparation of the previous report and several more bulletins are now awaiting publication. The three circulars were prepared and published by the Extension Department.

The Chemical Department has continued the study of the production and movement of nitrates under varying conditions of irrigation and crop systems. An immense amount of valuable information has already been obtained from this experiment and this will increase in value with each additional year's work. It has already been demonstrated that 15 inches of water under Greenville soil conditions produces the maximum of available plant food, while with 30 inches, which is still within the amount used by the ordinary farmer, the amount of plant food produced is materially reduced and apparently some of that produced is washed below the reach of the plant's roots and entirely lost.

Besides this work, the Chemical Department is studying the nature and effect of humus and organic matter on the soil. In this study it has been discovered that there is a chemical combination with phosphorus, iron and aluminum and it is due to these combinations, especially with aluminum, that the addition of humus increases the water holding capacity, improves the physical texture and thus prevents puddling and other harmful conditions of the soil.

The soil survey work has been continued and a complete report of the soil of the Southern Farm prepared for publication.

The arsenical poisoning work has been completed and the results are being tabulated. As the result of analysis of samples of orchard soil in all western districts for total arsenic, water-soluble arsenic, and alkali content, it was found that there is no relation between the total arsenic content of the soil and the death of the trees, that there is a relation between the water-soluble arsenic found and the amount of alkali, and still more definite relation between the alkali, and the areas in which trees are dying. A new method of determining arsenic in soils was worked out during this investigation, by which much more accurate results could be obtained. Where the old method gave but 33 per cent of arsenic present, the new method yields from 95 to 98 per cent.

The Agronomy Department, besides carrying on a large part of the irrigation investigations and assisting in the nitrate work, has been continuing the work of breeding sugar beets for high sugar content and extended it to test the possibility of

commercial seed raising under our conditions. They have succeeded in producing very high yields of seed and it seems possible that we may develop that as an industry in the western region. They have also tested out different crops with relation to their adaptability to western agriculture. Among these, beans have proved themselves to be very profitable and should no doubt be widely introduced into the cropping systems of the State.

In their study of rotations, the introduction of the sugar beet has been found to be highly beneficial in every case, as it is not only a profitable crop of itself, but through the deep stirring and frequent cultivation leaves the soil in such condition that it results in a large increase in whatever crop follows. Another result of this investigation is to show that even on the most fertile soils there is a great benefit from the use of barnyard manure. In the testing of forage crops, oats and peas in combination, have proved to be the best substitute for alfalfa under conditions where the latter cannot be grown. Tests have also been made of the value of different varieties of corn for silage and large amounts of dry matter have been produced with a number of different varieties.

The Horticulture Department, besides having charge of the Southern Experimental Farm and the co-operative peach irrigation work, has spent considerable time in testing the value of summer pruning on peaches and apples. Experiments have been under way for two years and are being watched to observe their effect on the yield, color and size of fruit and the general development of the tree. These will be continued and should give valuable results in the near future. Thinning experiments have been continued and are being carried on in co-operation with a number of orchardists in different localities. The work has already demonstrated that on some of the heavier bearing varieties it is possible to produce almost as much first-class fruit where thinning has been properly done as the total yield of all grades on the unthinned trees, while the product of the thinned trees increased in value \$150 or more per acre. The effect of thinning on succeeding crops and on the development of the tree will also be watched.

The department has also been testing the possibility of introducing celery as a commercial crop. Experiments were carried on in Davis and Cache Counties and some fine results secured. They will be continued, testing the adaptability of

different soils, of different varieties, in an attempt to develop a commercial industry. Co-operative experiments were carried on in testing the adaptability of Cache soils and climate for the production of canning peas, with marked success. This will probably result in an organization of the canning industry in this section.

The Animal Husbandry Department has carried on feeding experiments with dairy cows to ascertain the relative value of different cuttings of alfalfa hay, has fed a carload of sheep under different grain rations to determine the most economical ration of Utah products for sheep fattening, and has continued the study of the possibility of pure-bred horses in connection with farm work.

They have also had supervision of the work of the cow testing association at Richmond, and are preparing the results for publication.

The Poultry Department have continued the breeding of hens for egg production and the study of problems of incubation. There are a number of hens in the experiment that have laid between 650 and 700 eggs apiece and are still yielding profitable returns. Selected daughters from these high laying mothers have shown marked improvement over those from hens with less favorable records, indicating that the still further increase in productivity is possible.

The Entomological Department, besides the work on the alfalfa weevil, has studied the wheat straw worm, a pest not previously recorded for the western region, and has found that it is distributed throughout the entire wheat growing section of the State, the most serious damage being done in Cache and Tooele counties, where, under the worst conditions, it has destroyed as high as 40 per cent of the crop, averaging through many sections from 12 to 20 per cent injury. A study is being made of its life history, enemies, and methods of control. It attacks chiefly the better varieties of wheat and this may explain why in certain sections the Turkey wheat has not given the yields that were expected from the tests in other localities.

The department has continued its work upon arsenical poisoning and up to the present time no injury has resulted from the excessive applications of the arsenicals to orchard trees. The distribution of the sugar beet leaf hopper has been studied in detail and record kept of the influence of the climatic conditions upon its abundance and the injury done to the beets.

A publication is now in preparation. The department has also carried on the largest codling moth spraying experiment ever attempted in the United States. The orchards in which these experiments were carried on were excessively wormy and unsprayed trees lost all of their fruit early in the season from the worms. Under such unfavorable conditions, the efficiency of the driving spray was remarkably high—in fact, the highest record ever recorded in the United States was secured.

The Meteorological Department has continued the study of methods of frost prevention and is planning a series of studies in the determination of the real causes of frost injury.

The Department of Plant Pathology has been equipped during the past year and is undertaking a study of some of the more important diseases of the stone fruits. A disease causing considerable loss, which has been confused with scab, has been discovered and will be studied in detail in the future.

Summary of Requests.	For the carrying out of the provisions of Chapter 37 of the laws of 1911, as therein provided, .....\$15,000 per annum
	For co-operative work in fruit investigation 5,000 per annum

The fruit industry of the State is developing rapidly and owing to the failure of the water supply of the Central Fruit Station, it had to be abandoned. Since that time, no money has been available for fruit investigations. It seems unwise at this time to wait to start investigation work until it will be possible to establish a station and develop orchards. Many of these experiments can be carried on as well or even better in co-operation with fruit growers in the different localities and the provision of a small sum for experimental and demonstration work in the different localities would no doubt bring back many times the outlay in the development of this industry.

As has been suggested under the report of the School of Agriculture, a larger and better herd of dairy cattle is very desirable from the standpoint of economy in maintenance and also so that more experimental work could be undertaken.

The following bulletins have been published during the biennium and a number more are in preparation and course of publication. In addition to this, the Station staff have contributed a large number of articles to scientific proceedings and

agricultural papers, together with a number of addresses before scientific societies and farmers' organizations:

111 The Reclamation of Seeped and Alkali Lands.

112 A Report of Seven Years' Investigation of Dry Farming Methods.

113 The Influence of the Combined Harvester on the Value of Wheat.

114 The Movement of Nitric Nitrogen in soil and Its Relation to "Nitrogen Fixation."

115 Movement of Water in Irrigated Soils.

116 The Production of Dry Matter with Different Quantities of Irrigation Water.

117 The Yields of Crops with Different Quantities of Irrigation Water.

118 Methods of Increasing the Crop Producing Power of Irrigation Water.

119 The Effect of Irrigation on the Growth and Composition of Plants at Different Periods of Development.

120 The Chemical Composition of Crops as Affected by Different Quantities of Irrigation Water.

Cir. 5, Boys' Potato Clubs; Organization; How to Grow the Crop.

Cir. 6, Measurement and Distribution of Irrigation Water.

Cir. 7, Labor Saving Devices for the Farm Home.

The Station staff has been somewhat increased in numbers and the standard of training of the Station Workers has been materially advanced. As a result, the station work has been pursued with vigor and enthusiasm and the outlook for the future is of the brightest.

In conclusion, I wish again to express my deep appreciation of your continued personal interest in the work of the Experiment Station and especially of the large amount of time that you have devoted to the preparation of the results of the irrigation investigations.

Respectfully submitted,

E. D. BALL,

Director of Experiment Station.

REPORT ON THE PANGUITCH FARM.

To the President of the College:

Sir:—The work on the* Panguitch Farm was taken up late in the spring of 1912. It was planned to take this work up at the beginning of the year, but found impossible to secure a suitable man until one of the boys of the class of 1912 completed his work. It was too late then to undertake to put in any grain crops for the year and on investigating conditions at the farm, it was found that everything was in such a run-down and uncared for condition that an immense amount of work was required on ditches, fences, and buildings, before anything satisfactory could be done in the way of farm operations. Ditches were first repaired and the water turned on to the hay crop, which was harvested and cared for in good shape. As opportunity permitted, the remainder of the farm was thoroughly plowed, fences were repaired, and more work done on ditches, flumes, etc., in order to get the farm in shape to begin active farming operations in the spring. A small amount of fall seeding was done in order to test out the possibility of raising fall grain in this section.

The general conditions surrounding this farm seemed to render it desirable to make of this a demonstration dairy and livestock farm for the benefit and encouragement of this section of the State. The small appropriation granted for its maintenance was only sufficient for the purchase of a team, wagon, and the necessary farm implements to begin the work. A considerable number of expensive farm implements are yet to be purchased, some repairs will be necessary on the buildings, and a considerable amount of new fencing will be required. Most of the alfalfa land is run out and weedy and will need to be plowed up and re-sowed so that it will be some time before the farm is in shape to be self-supporting. It is, however, a valuable farm and with the right kind of care and management can be developed into a very valuable demonstration station for this section of the State. In order to enable it to reach any degree of success along these lines, it will be necessary to purchase a number of good dairy animals, together with a sire, as foundation stock for a dairy herd. It will be necessary to buy all the seed grain, also grain feed required during the next season, and if experiments are started to test out the

value of various crops, pasture mixtures, etc., for this section, some funds should be available for the purchase of seeds for this work.

For the purchase of eight or more dairy cows, together with a sire\$4,000

Summary of For the purchase of farm machinery,
Requests. fence materials, repairs, seed grain, to-
 gether with general labor, and the em-
 ployment of an agricultural expert during
the summer season who would be able to conduct affairs
of the farm and carry on co-operative investigations and
demonstrations with other farmers in the neighborhood
in this section of the State..... 4,000

Respectfully submitted,

E. D. BALL,
Director.

December 10, 1912.

EXTENSION DIVISION.

To the President of the College:

Sir:—I have the honor to submit the following report of the Extension Division:

At the beginning of the year 1912-13 the work of the Division was reorganized, although the spirit of the work continued, of course, to be the same. The reorganization was made necessary due to the immense increase in the scope of work under the very successful direction of Professor L. A. Merrill, and the increasing appreciation of the work as the third, and probably last, movement looking toward the fulfillment of the ideal of the founders of the land-grant colleges—the increasing the efficiency of the farmer through education. It has been keenly felt that an institution of learning confined to its limited campus and re-inforced by a staff of technically trained men whose function is the discovering of new truths relating to agriculture is not sufficient. The taking of this old knowledge which is the property of the faculty of the College and of the new facts gleaned from time to time by the Experiment Station experts—the taking of this fund of information to the farmers and housewives and the putting it to work, is the function of the Extension Division. It is, therefore, a very

logical unit in the system of agricultural education. In this work the Division operates along several lines.

The Extension Division as at present organized consists of departments as follows:

Farmers' Institutes and Schools—Prof. J. T. Caine III., Superintendent.

School Co-operation—Prof. J. C. Hogensen, in charge.

Improvement Associations—Miss Gertrude McCheyne, in charge.

Farm Demonstration—Dr. R. J. Evans, in charge.

Correspondence Studies—Prof. Geo. B. Hendricks, in charge.

News—Mr. Lon J. Haddock, associated.

Trains, Fairs, and Exhibits—Operated by staff conjointly.

The farmers' institute has been to some extent responsible for the widespread awakening in agriculture. This institution is now quite naturally being replaced by larger Farmers' sessions and more carefully organized instruction Institutes. tion than the institute usually furnished. Yet there would seem to be a continued use of farmers' institutes, quite largely as an inspirational device and an entering wedge in new communities.

The farmers' and housekeepers' schools are replacing the farmers' institutes. It is planned during the coming year to conduct twenty-four of these, of five days' duration each, in many of the principal districts of Farmers' and Housekeepers' the State. The work has begun under favorable Schools. circumstances.

Large and very interesting meetings always follow, where sufficient advertising is done and a program prepared which meets the needs of the community. I may express here the belief that the much talked of lethargy on the part of the farmer is often more fancied than real. He demands a vital, pick-and-shovel discussion. Give him this and he responds. Failures in reaching the farmer are, according to my limited experience, traceable to a poorly adapted program or to instruction lacking authority. I am inclined to the idea that one good way to reach the thousands who seldom attend our sessions is to utilize in Extension work a larger number of mature men, practical and successful farmers in the various lines.

From this report it is seen that the work of co-operating

in an agricultural way with the public schools of the State is meeting with hearty response on the part of the young men of Utah. Very successful agricultural contests have been conducted along the lines of potato growing. This work will undoubtedly be extended to cover a wide range of competition and ultimately co-operate with the home economics departments of the public schools in work along lines of domestic science and art.

I take pleasure in appending the report of Prof. J. C. Hogsensen, in charge of the school co-operation:

"So far the energy of the Department has been directed along the line of organizing 'Boys' Potato Growing Clubs' in the various counties of the State. During last spring and summer, 58 schools were visited in the State and a meeting was held at each school. At these meetings, there was an average attendance of 117 boys. In other words, I had the pleasure of talking to 6,786 boys on the subject of potato growing during the past season.

"These meetings were held and the clubs organized in co-operation with the county superintendents and principals of the district and high schools.

"We have now ten potato clubs in Cache county, and also a county organization. Each local club has a complete set of officers. The county organization has a president, secretary, and treasurer, and the president of each local club is a vice-president of the county club. In Cache county we have an enrollment of nearly six hundred boys. In Box Elder county we have nine potato clubs, with an enrollment of about three hundred boys. In Utah county we have four clubs with an enrollment of nearly one hundred boys. In Sanpete county we have one club, with an enrollment of twenty. This makes a total enrollment of 1,020 boys in the potato clubs.

"Each member pledges himself to grow one-half acre of potatoes under definite instructions as given by the Agricultural College. He keeps an accurate record of all the work done so that at the end of the year he knows what his potatoes have cost him. The individual members of each local club compete with each other for local prizes, given for best yield, best fifty pounds, best dozen tubers and best paper to consist of not more than one thousand words. Those who win local prizes,

take their potatoes to the county fair where prizes are offered to the boys on the same basis.

"Those who win at the county fairs take their potatoes to the State Fair, where the Utah State Fair Association offers annually four silver trophy cups as first, second, third and fourth prizes to the boys in potato growing. The cups were awarded during the State Fair this year on the following basis:

Yield (certified to by the principal of school)	60%
Best 50 pounds	20%
Best dozen tubers	10%
Best paper on 'How the Crop was Grown'	10%

Total	100%
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"The boy getting the highest yield receives 60% on yield, 5% to be deducted for every decrease of 50 bushels in the field.

"The boy exhibiting the best 50 pounds receives 20%, 1% to be deducted for every blemish, wrong shape, poor size, etc.

"The boy exhibiting the best dozen tubers receives 10%, 2% to be deducted for every blemish, wrong shape, and poor size.

"In the written paper, one-half of 1% will be deducted for every misspelled word, one-fourth of 1% for every poorly constructed sentence, and neatness will also receive attention.

"That these clubs are a success and that they are doing a great deal of good is shown by the interest that is manifested in them all over the State. All of the prizes offered for potatoes at the recent State Fair were won by boys belonging to these clubs. Some of the boys, by following strictly the instructions given to them by the Department succeeded in growing from 760 to 840 bushels per acre.

"Last spring this Department published Circular No. 5, entitled, 'Boys' Potato Clubs, Organization, and How to Grow the Crop.' This circular gives in detail, the benefits to be derived from such organizations, how to organize and how to grow potatoes most advantageously in Utah. A copy of this circular was placed in the hands of each member of the clubs.

"Plans are now in preparation to extend the contests among the boys and girls of the State on a much wider basis next year. The object will be to localize the work so that in those sections where the boys are interested in potato growing

they may grow potatoes, in other sections where they are interested in tomato growing or vegetable growing, or wheat, oats, barley or alfalfa those crops may be grown. Girls' clubs in bread making, fruit canning, sewing, poultry raising, and flower growing will also be organized. Local merchants, commercial clubs, individual farmers, etc., will be asked to give premiums. The contestants will be divided into juniors and seniors according to age. The successful contestants will be given free trips to the 'Farmers' Round-up and Housekeepers' Conference' held at the Agricultural College, in Logan, and trips to the State Fair at Salt Lake City. Books, agricultural implements, and other useful articles will also be given.

"The Commercial Club, Salt Lake, and local commercial and town clubs, individual farmers, and merchants will be asked to give premiums. A committee on premiums will be formed.

"There will be a general manager and officers in each county. For local clubs a committee including principal of the high school and presidents of mutual associations or any other available organizations will be in charge.

"Any boy or girl, whether school attendant, or working, may become a member.

"The Extension Division should furnish circulars giving constitutions, premiums offered, etc. Also circulars giving information on contest, etc.

"Grain, and stock judging contests will be held at each movable school. These contests will be divided into boys' and men's sections.

"The result to be secured from each club may be thus summarized:

"(1) Individually the members are led to observe more closely, to recognize good and bad qualities in the products they have grown. They meet and solve some problems in the improvement of plants, animals and housework. They learn something of the value of labor, read good literature and learn some of the sources of good agricultural literature. Their views are broadened by contact with others. Finally, the power of taking the initiative becomes strongly developed in them so that they become responsible members of the community.

“(2) Collectively they learn the value of organized effort and of compromise.

“(3) The influence upon the communities at large is apparent, in producing better results in farming.

“(4) The knowledge that the natural love of competition among boys and girls can be utilized to immense advantage in furthering their own education for efficiency.”

J. C. HOGENSON.

It is the function of the Department of Improvement Associations to correlate with women's clubs, church organizations and with all other women's organizations for the betterment of the State and especially of the rural communities. The report of Miss Gertrude McCheyne follows:

“Under the head of ‘Improvement Associations’ the work has only existed since September 1, 1912, but is allied with any Extension work done especially for women. I have, therefore, included Housekeepers’ Schools and Institutes for the past two years. The work is planned with a view of introducing into Church organizations, Federated Clubs, etc., a systematized course of study of Home Economics. In order to bring this phase, as well as the general work of the Extension Division, before the women, a circular has been printed giving the lines of work offered especially for them.

“In addition to the Housekeepers’ Schools of one week, two and three-day schools, suitable for church and club organizations, are offered. During all such work an effort is made to make it permanent by continuous study under our guidance. These sets of topics have been outlined for study, it being thought better to allow the women to make choice of subjects rather than to prepare a set program. From these they draw up local programs for the use of their associations. The books needed for reference as well as many other practical works on home subjects, have been carefully listed. All this literature has been sent to each association president and to the presidents of every federated club. Opportunity was given at the State Federation of Women's Clubs to introduce this matter and much interest was shown. I believe we can add this line of duty to most club programs when the present season is over.

In the case of Relief Societies considerable study has been done and the topics as presented have met with favor and a desire expressed for a more scientific line of study as offered by the College.

"Lectures and short schools are going to be popular and will provide means of introducing the idea of organized study in home economics. In addition to the above, it may be possible to form a few separate clubs in home economics in cases where the women of a town belong to none of the existing organizations. Other than this, I believe it best to work through channels already dug. The point is not to multiply organizations but rather to help those already formed to do still better and more practical work.

The Needs. If calls for service continue to come in as rapidly as they have the past few months the great need will be for competent workers.

Expenses. The actual expenses will not be great because aside from the advertising already done amounting to only \$15.00, the work is carried on during such activities as Housekeepers' one-week schools, at special sessions of women called during Teachers' Institutes, and at any time there is a chance. In the case of two and three-day schools it is my opinion that the cost of materials and instructor's entertainment should be cared for by the local managements, we to pay the railroad fare and provide an instructor. If we give too much for nothing it is not appreciated.

"I believe there is a great chance in this work to benefit particularly the rural communities, to arouse an interest in the women in the work being done in the schools in this line of teaching, and to correlate in some measure this work with the home.

Statistics. These figures include sessions held for women alone which were concerned with home betterment and Improvement Association work.

1911	Counties visited, July 1, 1911, to June 30, 1912...	32
	Attendance	2781
	Number of days.....	90
	Average attendance	43

Speakers—Mrs. John A. Widtsoe, Mrs. Hazel Dunford, Miss Blance Cooper and Miss Leah Ivins.

1912	Counties visited, July 1, 1912, to Oct. 25, 1912...	8
	Attendance	1097
	Number of days.....	20
	Average attendance	55
Speakers—Miss Blance Cooper and Miss Gertrude McCheyne."		
	GERTRUDE M. MCCHEYNE.	

The work of Farm Demonstration has been in charge of Mr. L. M. Winsor, whose activities among the farmers of the State has proved very popular. Mr. Winsor's resignation has been accepted and the work as of Farm now organized is in charge of Dr. R. J. Evans. Demonstration. Under the guidance of Dr. Evans it is proposed to begin a vigorous campaign in the State in the interest of better farming methods by personal visits to farmers made by the State leader of this work or by local agents as officers of the Extension Division. It is thought well also to operate along the line of establishing model demonstration farms especially in the undeveloped areas of the State. It would seem that the most satisfactory way to demonstrate the possibilities of an area is to select an average site and by the strictest scientific principles prove the worth of the land. An informal request has been made by the S. P., L. A. & S. L. R. R. to establish demonstration farms of this nature along their roads. It is believed that this movement is a good one. The only function of the College on the farm will be to supervise the work, all expense undoubtedly being paid by the Railroad. It is strongly advised that co-operative work of this nature wherever it would be of benefit to a struggling community be arranged.

It is proposed to run during the coming winter, if special arrangements can be made with the S. P., L. A. & S. L. R. R. and the D. & R. G. R. R., demonstration trains over these two lines. The function of the train is to be in the Demonstration nature of an agent to crystalize public sentiment. Trains. As a method of instruction it is probably not very valuable; as an agent in suddenly and dramatically informing the State regarding any great issue, it can probably not be surpassed. At present the very prosperous condition of the livestock market makes it appear desirable to thrust home to the farmers of the State by means of a train the whole question of better and more livestock. Details are

still pending with the roads so it cannot be stated at this time just what action will be taken.

The Department of Correspondence Studies were organized at the commencement of the last College year. The report of Professor H. C. Dale indicates that in 1912 the following condition prevailed.

Correspondence
Studies.

Number of students registered, 43.

Courses offered:

Accounting,
Agricultural Engineering,
Agronomy,
Animal Husbandry,
Domestic Arts,
Domestic Science,
Economics,
English,
Entomology,
History,
History of Education,
Mathematics,
Political Science,
Poultry Husbandry.

The report of the Correspondence Department for the past year has already been submitted to you by Prof. George B. Hendricks.

The Department of News operates in the following lines,
(a) special circulars, (b) current College news,
Department (c) display advertising, (d) special write-up.
of News. The Department published during the year 1911-12 the following special circulars:

"The College at Work."
"Summer School Circular."
"Forestry Circular."

During the year 1912-13 up to the present the Department has published the following:

"Success and Education."
"Efficiency Education."

The College has attempted to keep the Salt Lake papers, Logan papers and the Ogden papers well informed concerning the current news of the Institution. This has awakened, we believe, a keener interest on the part of the people of the State

in the welfare of the College. The papers as a usual thing have welcomed this service. In addition to supplying daily news to these papers occasionally news letters are sent out to the press of the entire State, emphasizing the more important happenings of the College. The Institution can be well served by a faithful and accurate publication of essential facts concerning its growth and development.

From July 1, 1911, when I assumed the work, till October 1, 1912, the following expenditures have been made:

Country Press Advertising.....	\$ 382.19
Special papers and magazines (including Young Woman's Journal, Deseret Farmer, Improve- ment Era, Juvenile Instructor, Western Month- ly, and various special programs and souvenirs)	935.50
Logan papers	88.15
Salt Lake papers	646.41
Total	<hr/> \$2,052.25

An effort is being made this year to organize the State in order to enable the Extension Division more effectively to reach the farmers. This organization will for the present consist mainly of what may be called a Board of Chairmen, consisting of representative men from each considerable community.

These men are chosen because of their success as farmers and of their ability as leaders. Around them will ultimately grow, it is hoped, an organization of greater or less extent. This Board of Chairmen, when finally organized, should somehow be closely affiliated with the College. It is recommended that their names be published in the regular College catalogue and that they annually meet during the mid-winter convention in Logan on which occasion plans for the ensuing year should be announced and discussed. The satisfactory organization and manipulation of this board, in my mind, will more effectively introduce the spirit of the College into the lives of the men and women of Utah than any other one factor. It will center responsibility in the communities. Through these chairmen the Extension Division will be asked to give instruction or demonstration in certain lines of work. It will give to a choice set of men (and women also when the home eco-

nomics organization is complete) a feeling of ownership in the College and a pride in its work.

A phase of Extension work which will sooner or later become prominent is the traveling instructorship. Frequently requests come in from various parts of the State from farmers, merchants, and school teachers for instruction. Requests are usually made for one meeting each week. This is an effective way of reaching the people of the State and should be encouraged wherever possible. It is believed that the demand will extend. Ultimately the employment of regular traveling instructors may be found necessary.

The most urgent need of the Extension Division is additional funds with which to carry on the work. It would seem probable that the Lever Extension Bill which passed the U. S. House of Representatives at its last session will come up for consideration in the U. S. Senate during the coming year. If this bill passes unamended through the Senate it will be a very effective stimulant to agricultural development. It will enable the Extension Division to put skilled farm demonstrators "on the land," and through the operation of model farms, especially in undeveloped sections, to demonstrate the possibility of the various and diverse agricultural sections of Utah. Aside from the question of federal aid in *farm demonstration*, which is the prime object of the Lever Bill, the other departments need additional State aid. In the conducting of Farmers' Institutes and Schools, in Correspondence Studies, in School Co-operation work, in Improvement Associations, and in operating Trains, Fairs, and Exhibits, \$10,000 additional per biennium will be necessary, if the work is to develop in harmony with similar movements in other states.

Considerable equipment for the Extension offices is urgently needed, details of which will be presented to the President's office later.

Respectfully submitted,

E. G. PETERSON,
Director, Extension Division.

December 5, 1912.

DEPARTMENT OF AGRONOMY.

To the President of the College:

Sir:—During the past two years the progress of the Department of Agronomy has been in keeping with that of the College in general. There has been a decided increase in the enrollment of students, the instruction staff has been strengthened and the equipment has been enlarged. It is, therefore, probable that the Department has never before in its history been in as good a position to serve the School as at present.

In July, 1911, Prof. J. C. Hogenson, head of the Department, was transferred to the Extension Division and the writer was placed in charge. Mr. Erastus Peterson, Organization. assistant agronomist, had resigned previous to this time and had been succeeded by Mr. A. E. Bowman, also a graduate of the College.

In July, 1912, Mr. C. L. Merrill, another local graduate, was added to the instructing staff. During 1911-12 the President of the College greatly aided the instruction of the Department by giving the courses in Dry-Farming and Irrigation Practice.

At the present time the following courses are being offered: (1) Agronomy, (2) Elementary Agriculture, (3) Cereal Crops, (4) Forage and Root Crops, (5) Courses. Seeds, (6) Weeds, (7) Investigation and Experimentation, (8) Soil Management, (9) Comparative Soils, (10) Advanced Soils, (11) Advanced Laboratory in Soils, (12) Manures, (14) Dry Farming, (15) Irrigation Practice, (16) Farm Management, (17) Crop Ecology and Agricultural Geography, (18) History of Agriculture and Rural Social Conditions, (19) Seminar, and (20) Research.

Of these, the following are being conducted this year, as some of the courses are given only every alternate year: Agronomy 2, 3, 4, 6, 8, 9, 14, 15, 16, 19, and 20. In addition to giving the above courses at the College the department staff during 1911-12 gave courses in agriculture to Logan City teachers, and at present it is giving two 3-hour courses at the Brigham Young College. Since the organization of the Correspondence Department our staff has been kept busy with regular correspondence students, as nearly two-thirds of the entire enrollment has been in agronomy courses. There are

many hundreds of letters during each year from the farmers of the State requesting information on a great variety of subjects. Miscellaneous work of this nature is time-consuming but is of much value to the people of the State.

The enrollment in the various courses given by the Department has been as follows:

Subject.	1909-10	1910-11	1911-12	1912-13 up to date
General Agriculture	23	105	208	77
Cereal Crops	37	25	43	30
Forage and Root Crops . . . . .	..	10	43	51
Soil Physics	16	12	..	..
Comparative Soils . . . . .	..	..	..	15
Soil Management . . . . .	..	1	11	28
Advanced Soils . . . . .	..	..	12	..
Dry Farming	15	31	41	36
Irrigation Practice . . . . .	..	..	43	15
Research . . . . .	..	..	6	3
Seminar . . . . .	..	..	9	16
Farm Management	2	5	5	7
Investigation and Experi- mentation	9	6	..	..
Manures . . . . .	..	3	..	..
Seeds	3	..	..	..
Weeds . . . . .	..	..	..	3
Two Courses at Brigham Young College . . . . .	..	..	..	52
Correspondence Students . . . . .	..	..	31	9
Total	105	198	452	342

A number of notable improvements and additions have been made during the last year and a half. A laboratory for advanced students has been fitted up, where a better grade of work can be done in the higher courses than was possible in the elementary laboratories. A library room has been set apart for the students of the department, where they have access to reference books, bulletins and farm papers. This makes a good place for the students to prepare reports and to keep in touch with recent publications. The larger part of the old drill hall has

been changed into an agricultural museum and partly filled with various educational exhibits.

During the past summer a crop garden was laid out and crops raised to assist in the work of instruction. In this garden it is the object to raise small plats of every field crop that will grow in the State. This gives the student a chance to become familiar with other crops than those raised in his own home locality. It also serves as a source of illustrative material for the teachers of Agriculture in the high schools throughout the State.

The chief need of the Department is the increasing of the equipment to take care of the greater number of students registering in the various courses. The laboratories are filled and there is apparatus enough to accommodate only a fraction of the students present. This often results in wasteful waiting, which would not be necessary if there were more pieces of the standard apparatus. In the advanced laboratory there is need of an additional desk and a hood costing together about \$300.00.

There is much valuable work which it is now impossible for the students to do on account of there being no greenhouse space available for the Department. It is the writer's belief that considerable effort should be made to get a series of departmental greenhouses. These could be heated by a central heating plant and could be watched by one man, thus lessening the cost to each department. In order to illustrate the principles of agriculture, growing plants are necessary and it is impossible to have plants grow during the school season without a greenhouse.

The agricultural museum should be given more attention. At least part of one man's time could be very profitably employed in arranging educational exhibits of a permanent nature, which would be always before the students and which would be helpful to visitors.

The Department staff finds itself so constantly overworked that it is impossible to get the best results. This overwork results from the high enrollment, and the large number of courses, and the great many administrative duties connected with the machinery of the School. A much better grade of work could be done if the needed enlargement of the teaching staff could be made.

The outlook of the agronomy work in the College and the

State is indeed promising. The College has been a pioneer in outlining dry-farming and irrigation methods and as a result many other states of the Union and even foreign countries look up to it as a leader along these lines. This fact has enabled graduates of the College to find remunerative employment in many of the Western States where they may be found holding positions of honor and responsibility.

It is the aim of those in charge of the Department to make its work of a high standard in order that its graduates may be as useful as possible in building up both State and Country.

Respectfully submitted,

FRANK S. HARRIS,
Professor of Agronomy.

December 9, 1912.

DEPARTMENT OF AGRICULTURAL ENGINEERING.

To the President of the College:

Sir:—The records of the surveying branch of this Department show the following:

1910-11 Course in Surveying 1 given to 19 students.

1911-12 Surveying 1 given to 20 students, and surveying 3 given to 4 students. Total for 1911-12, 24 students.

1912-13 Surveying 1 for Agricultural students.. 35 registered

Surveying 1 for Agricultural Engineer-
ing students 6 registered

Surveying 3 for Agricultural Engineer-
ing students 5 registered

Surveying 5 for Agricultural Engineer-
ing students 5 registered

Total 51

As regards rooms for this part of the work I may say that Room 3, Mechanic Arts Building, which was set aside for an instrument room, is now being used as a class room, it having been found necessary to make the change because my classes, Mr. Newey's and Mr. Hansen's were all using the only class room in the shops which is Room 2, and conflicts arose. If a partition could be put across a small part of Room 3 to divide

off the instruments, the balance could be used permanently as at present for a class room.

Room 5, which is now being used jointly as an engineering testing laboratory and also for the course in Farm Mechanics will not serve the purpose another year without some conflict and crowding, and hence it will be necessary to house the Farm Machinery in some other place for next year. In all other respects I think we have plenty of room.

Respectfully submitted,

RAY B. WEST,
Instructor in Surveying.

November 4, 1912.

DEPARTMENT OF ANIMAL HUSBANDRY.

To the President of the College:

Sir:—We are enclosing a list of the classes with the instructors and registration for the years 1910-12 divided into first term courses, second term courses and full year courses, with the exception of the report for this year, which deals with only the courses which were running up to October 25th.

In the departmental report for the year 1910-11 no entry was made for the winter course, and I have been unable to find any records which would give the number of students registered in that, as the registrar was unable to furnish me the data. No doubt there was a winter course running that year.

Aside from the teaching work in the Department during the past two years a great deal of time has been consumed in Extension work. In fact, during the two years just past, the conditions have been such as to handicap in a material way the efficiency of the Department. The present arrangement promises to be somewhat better unless one of the two present men is asked to spend too much time in that work. Aside from the regular work in Animal Husbandry and Dairying and the Extension work, the department has looked after the State Board of Horse Commissioners and has published one report on the same. This has required an immense amount of time, but it seems to be on a pretty good basis now.

The immediate needs of the Department seem to be, first, bull pens, plans of which are now in course of preparation. This is very important because we have no way by which we

can handle the bulls with any degree of safety to the men directly concerned, nor is it safe for any part of the community on the hill, because at any time it is possible for the bulls to break out of their present quarters and run loose in the vicinity.

Perhaps the next greatest need is a milk house. I understand that plans have been submitted for that earlier and I believe you are rather fully acquainted with the need, so I shall take no time in discussing it.

A dairy building is a very pressing need. I think I wrote you some time ago that our creamery was scored at $78\frac{1}{2}$ as against 90, and above, for a great many dairies and creameries throughout the State. Anything that can be done to impress this need upon the Legislature would be a great aid to our Department.

Another thing that has been much needed is a granary containing room for storing the winter supply of grain, and facilities for crushing, preparing and mixing the grain. We have been doing a little remodeling preparatory to storing grain this fall, but it is very unsatisfactory and we have no adequate means of preparing the feed, so far as crushing and grinding are concerned. I believe this building could be erected at a very small cost and would practically save the expense by the difference in buying grain as we need it and buying in the fall and storing it.

Our classes are becoming so large that we need one large class room that will hold about 100 students, our present room (126) being altogether too small to accommodate our larger classes. In the very near future we shall be in great need of a laboratory for laboratory work in Animal Nutrition. I have spent very little in thinking over the plans or the definite needs, but as soon as possible we should be offering some laboratory work in that course and that will call for room and equipment for the same.

At the present time we have no recommendations to make concerning new courses to be installed. That will be a matter to be taken up later.

Remodeling and equipping our present dairy barn was overlooked in this letter, but in our report dated March 16, 1912 the matter was discussed, so that I feel you are acquainted with the conditions.

ANIMAL HUSBANDRY COURSES.

1910-11

First Term Courses.

No. of Course	Instructor	Enrollment
An. Hus. 1	Prof. J. T. Caine, III.....	68
An. Hus. 3	Prof. J. T. Caine, III.....	8
An. Hus. 4	Prof. J. T. Caine, III.....	9
An. Hus. 6	Prof. J. T. Caine, III.....	4

Second Term Courses.

An. Hus. 1	Prof. J. T. Caine, III.....	29
An. Hus. 4	Prof. J. T. Caine, III.....	3

Second Term Courses.

No. of Course	Instructor	Enrollment
An Hus. 5	Prof. J. T. Caine, III.....	4
Dairy 1	Prof. J. T. Caine, III.....	11
Dairy 3	Prof. J. T. Caine, III, and Mr. Bingham..	5

Full Year Courses.

An. Hus.2	Prof. J. T. Caine, III.....	13
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ANIMAL HUSBANDRY COURSES.

1911-12.

First Term Courses.

An. Hus. 1	Prof. W. E. Carroll.....	56
An. Hus. 1	(Winter Course) George B. Caine.....	34
An. Hus. 6	Prof. J. T. Caine, III, and Prof. W. E. Carroll.	6

Second Term Courses.

An. Hus. 1	Prof W. E. Carroll.....	46
An. Hus. 1	Prof. J. T. Caine, III, (Special to City Teachers).....	4
An. Hus. 4	Prof. J. T. Caine Jr. and Prof. J.T.Caine, III,4	
An. Hus. 5	Prof. J. T. Caine III.....	14
Dairy 1	Prof. W. E. Carroll and Mr. Bingham.....	17

Full Year Courses.

No. of Course	Instructor	Enrollment
An. Hus. 2	Prof. W. E. Carroll and Prof. J. T. Caine III,	27
An. Hus. 3	Prof. W. E. Carroll.....	4
An. Hus. 9	Prof. W. E. Carroll.....	7

ANIMAL HUSBANDRY COURSES.

TO OCT. 25, 1912.

An. Hus. 1	Prof. H. E. McNatt.....	82
An. Hus. 2	Prof. W. E. Carroll.....	19
An. Hus. 3	Prof. W. E. Carroll.....	14
An. Hus. 6	Prof. H. E. McNatt.....	16
An. Hus. 9	Prof. W. E. Carroll.....	10
Dairy 3	Prof. H. E. McNatt.....	8

Respectfully submitted,

W. E. CARROLL

Assistant Professor, Animal Husbandry.

October 30, 1912.

DEPARTMENT OF ART.

To the President of the College,

Sir:

1. Class Work.

(a) The following courses are given this year.

Art 1. For general Agricultural students.

Art II. For Domestic Science Girls.

Art III. For Mechanic Art Boys.

Art IV. Design, stenciling, block printing, leather tooling, china decorating and rudiments of pottery.

Art V. General Art Studio.

Art X. History of Art.

Art XI. Aesthetics.

Art XVI. Lettering.

Art XX. For teachers and special students.

(b) Teachers.

J. H. Moser.

Miss Ida May Savage.

(c) No. of students enrolled:

Art I	58
Art II	64
Art III	30
Art IV	
Art XX	14
	166

I. Class Work

(a) The following courses were given during the past year :

- Art I For general and Agricultural students.
- Art II For Domestic Science Girls.
- Art III For Mechanic Art Boys.
- Art IV For second year Domestic Science Girls.
- D. A. 8 For Household Decoration and art for Sophomore Girls.
- Art 10 History of Art, of Painting, Sculptor and Decoration.
- Art 11 Aesthetics, a general course in the fundamental of beauty as applied to the Arts.
- Art 12 Advanced Art Needlework.
- Art 13 Professional Costume Design.
- Art 14 Home Crafts.
- Art 15 Pottery and China Decoration.
- Art 16 Lettering.
- Art 17, 18, 19, Furniture, Metal and Interior Design.
- Art 20 Studio work, advanced sculpture and painting.

(b) Teachers.

Prof. Calvin Fletcher.

Mr. J. H. Moser.

(c) Number of students enrolled :

Art 1	58
Art 3	37
Art 2	65
Art 4	16
Art 5	3
Art 12	2
Art 14	4
Art 15	2
Art 8	10
Art 20	13
	210

1. Class Work.

(a) The following courses were given during the year 1910-11:

Art. 1. For General and agricultural students.

Art. 2. For Domestic Science Girls.

Art. 3. For Mechanic Arts Boys.

Art. 4. Second year Domestic Science Girls.

Art. 8. Household Decoration and Art for Sophomore Girls.

(b) Teachers.

Prof. Calvin Fletcher.

Prof. J. S. Powell.

(c) Number of students enrolled:

Art. 1	46
Art. 2	61
Art. 3	52
Art. 4	14
Art. 5	8

181

The teachers have been heart and soul in this work and have brought the practical side of all the courses before the students. The boys are being taught to draw the plants, trees, insects and the domestic animals, while the girls are taught to beautify their homes, learning the harmonies of color and making their own costume designs. We as teachers feel the Department is growing and the results of our work are an uplift to the rising generation.

Our greatest need for the immediate future is a potter's kiln, which should be built in a convenient place on the grounds.

The cost of this kiln is about \$300.00. To build it we must employ a man who makes kiln building a special business. Building this kiln will lead to the making of pottery and tiles, the firing and glazing opening up new problems of intense interest to students.

We also need an enclosed room for metal-work, because the hammering of metal annoys the other classes. One of the small rooms adjoining the Department will do.

Respectfully submitted,

J. H. MOSER,

Instructor in Art.

December 9, 1912.

THE DEPARTMENT OF BACTERIOLOGY AND PHYSIOLOGY.

To the President of the College:

Sir:—I have the honor to submit the following report covering the work of the Department of Bacteriology and Physiology during the year 1911-12 and during the year 1912-13 to October 25, 1912. I assumed the professorship of Bacteriology and Physiology in June, 1911, and consequently can report on the Department only since that date.

The Department of Bacteriology and Physiology was first organized in June, 1911, the work in Physiology being segregated from the Department of Zoology and Entomology and the Department of Bacteriology being dignified for the first time by a professorship. The work in Bacteriology had during the immediately preceding years been a part of the duty of the Professor of Veterinary Science. Previously it was associated with the Department of Animal Industry, in the dairy section. The one year's experience with the subject co-ordinate with other subjects in the College course has demonstrated the wisdom of the administration in thus giving prominent place to the new science. The keen interest of the students in the general phases of the subject and the opportunity the Department offers to special workers in soils, dairying, home economics, and veterinary science, bid fair to make the Department one of the most popular in the Institution.

The courses offered by the Department were announced in June, 1911, to be as follows:

1. General Bacteriology. The preparation of media, sterilization, different staining methods, classification, general biology, cultural characters of typical forms, quantitative and qualitative methods of examination; function, distribution, cultivation, isolation, and identification of important forms. One term of laboratory work and lectures. One and one-half credits.

2. Pathogenic Bacteriology. A course covering the fundamentals of the subject: morphology, classification, biology, distribution, function, cultural and staining characters, methods of cultivation, theories of immunity, the principles of applied bacteriology. A discussion of disease producing organisms. Three lectures a week for one term. One and one-half credits.

3. Soil Bacteriology. A course covering the principles of soil bacteriology and fitting the student for original investigations. Exercises involving questions of relation of depth, moisture, character of soil, temperature, chemical reaction, and aeration, to bacterial life; ammonification, nitrification, denitrification, nitrogen fixation, soil inoculation. Prerequisite, Bacteriology 2. Six hours a week for one term. Laboratory work, lectures and reports. One and one-half credits.

4. Dairy Bacteriology. A course covering the principles of dairy bacteriology. A consideration of the bacteria of milk, butter, and cheese; infectious diseases in their relation to the dairy; contamination by air, water, and utensils; desirable and undesirable fermentations. Prerequisite, Bacteriology 2. Six hours a week for one term. Laboratory work, lectures, and reports. One and one-half credits.

5. Household Bacteriology. A study of bacteria in their relation to household economy; bacteria in milk, water and other foods; milk and water contamination; effect of cooling and pasteurization upon milk; yeasts, molds and fermentation; bacteriology in relation to canning and preservation; minimum, optimum and maximum temperatures, and thermal death point of important household species; action of disinfectants. Prerequisite, Bacteriology 2. Six hours a week. Laboratory work, reports and discussion. One and one-half credits.

6. Research Work. The laboratory and library facilities are especially arranged to meet the needs of advanced students desiring to undertake bacteriological investigation with reference to agriculture, household science, the industries, sanitary science and veterinary science. Time and credit to be arranged.

7. Seminar. The advanced students and others interested will meet to discuss current literature and to hear the results of original investigation. Credit may be received for attendance at these meetings.

1. Elementary Physiology. A course intended for high school students. The structure and functions of the different parts of the human body are studied in the class room and in the laboratory. Some microscope work is given. Two recitations and one laboratory period throughout the year. Four credits.

2. Advanced Physiology. A complete discussion of

movement, sensation, circulation, respiration, digestion, absorption, metabolism, and excretion. Questions of hygiene and sanitation are discussed. Three hours, one term. Three credits.

3. Digestion, Absorption, and Metabolism. An advanced course in special phases of Physiology. It will involve research work.

The following courses were announced in June, 1912:

1. Sanitation. A general course in the principles of sanitation in relation to rural homes and communities. The nature of disease; methods of its spread and means of prevention; the most sanitary methods of arranging and constructing farm buildings; methods of disinfecting. Prerequisite, Bacteriology 1. Three hours, one term. Three credits.

2. Rural Water Supplies. Methods of supplying farm homes and rural communities with sanitary water. Special attention will be given to Utah conditions. Three hours, one term. Three credits.

3. Rural Waste Disposal. This course will discuss the methods of handling the wastes of the farm and small town in a manner that will be both convenient and sanitary. Three hours, one term. Three credits.

4. Sanitary Analysis. This course will deal with methods of making chemical and bacterial analysis of water, milk, etc., for sanitary purposes. It is intended primarily as a training for inspection work. Prerequisite, work in chemistry and bacteriology. One lecture and two laboratory periods, one term. Three credits.

5. Disease Prevention. Arrangements will be made to have lectures on this subject by competent physicians and others. Special attention will be given to rural conditions. The course will be of a popular nature and will be open to all students of the College. Two hours, one term. Two credits.

6. Sanitary Statistics. This will be a course in vital statistics, showing the effects of sanitary precautions on the death rate. Comparisons will be made of the death rate of cities and of country communities. Methods of getting statistics and determining death rate will also be discussed. Two hours, one term. Two credits.

The attendance in these courses has been as follows:

No. Registered 1911-12				No. Registered 1912-13 up to Oct. 25	
Bacteriology 1...	1st term	37	2nd term	34	1st term 62
Bacteriology 2...	not given			3	given 2nd term
Bacteriology 3...	not given			3	given 2nd term
Bacteriology 6...	not given		not given		1
Physiology 1....		176		124	147
Physiology 2....	not given			11	given 2nd term
Sanitation 1.....	....		....		given 2nd term
Sanitation 5.....	....		....		9
Total		213		175	219

It may be said that the courses have met with immediate success. Small classes were organized in soil and in pathogenic bacteriology in 1911 in order to encourage interest in these subjects. Rural Sanitation 5 offered this year for the first time promises to be a valuable addition to our curriculum. Many State leaders have manifested a keen interest in the new course and the attendance (an average of thirty being recorded) has to date been remarkable, considering the unfortunate hour of meeting—from 2 until 2:50 p. m. each Friday and Saturday of the first term.

The most immediate needs of the Department are additional laboratory and lecture room space, and incubator room of two compartments, and additional equipment consisting of a hot water tank and a large auto-clav.

The need for additional laboratory space and class room is urgent. At the present time extreme difficulty is encountered in arranging for laboratory time for the elementary and advanced courses. In fact, it seems probable that no satisfactory adjustment can be made, a dropping of some of the students and a limiting of the hours of others being demanded. And not a very considerable amount of laboratory work has been possible in advanced physiology because of lack of equipment and laboratory space. The work has been of necessity merely demonstration. At present no lecture room is available for work in bacteriology and physiology. Some provision is quite necessary at an early date.

Unless arrangements are made for *housing the Department of Bacteriology and Physiology in a new building* soon to be constructed and adapted, by window lighting, gas, and

electric lighting, for laboratory purposes, room 177 should be placed at the disposal of the Department. It is thought that provision should be made for housing this Department in a new building. The necessity of special incubator heaters, and of steam and hot water could be very easily supplied to two or three departments in a specially constructed building. The close relationship of bacteriology and chemistry would seem to emphasize the desirability of this change. There would be small loss in changing buildings, incident only to plumbing; and there would be considerable saving in steam and in exchange between the Departments of rare supplies and valuable equipment.

Ample incubator compartments can be constructed for \$197.00. These would be cement lined to make them fire-proof. Such charge would be only for the compartments, extra provision being necessary for the incubators themselves. A sufficiently large hot water tank, to be steam heated, would cost about \$30.00.

Much of the work in bacteriology is this year transferred to Dr. J. E. Greaves. To myself will fall the work in advanced physiology and supervision of elementary physiology, besides the work in Rural Sanitation 1 and Rural Sanitation 5. Mr. W. L. Quayle will probably teach all but one section in Physiology 1. It is a pleasure to report his work of last year and of this year as satisfactory. He has evidenced constantly a disposition to be of greatest service in the often perplexing arrangement obtaining in elementary physiology.

Mr. Ernest Mohr has assisted in the work in Bacteriology during the last year. He has been found capable, trustworthy and of great value in the crowded condition of the laboratory. With the consent of Dr. Greaves it is recommended that he be employed as assistant in Bacteriology on regular salary.

Respectfully submitted,

E. G. PETERSON,

Professor of Bacteriology and Physiology.

October 25, 1912.

DEPARTMENT OF BOTANY AND PLANT PATHOLOGY.

To the President of the College:

Sir:—I beg leave to submit for your consideration the following report of the Department of Botany and Plant Pathology.

In 1910-11 botany was a part of the Department of Horticulture and Botany. In the fall of 1911 botany was separated from horticulture and made a distinct department of the Institution. In 1910-11, Prof. C. P. Smith had charge of the work and the following courses were outlined in the catalogue:

Course 2, systematic and morphological Botany, one term; 3, Histology, one term; 4, Physiology, one term; 5, Plant Pathology, one term. The advanced electives were: Course 6, Economic Botany; 7, Ecology; 8, Advanced Histology; 9, Algae and Fungi; 10, Mosses and Ferns; 11, Seed Plants; 12, Forest Botany; 13, Poisonous Plants.

Please observe that practically all these courses have to deal with morphology. Course 2, Course 9, 10, and 11, are purely morphological courses. Furthermore, Course 2 was not a general course in botany and did not give a foundation for any advanced courses. Its end and aim was purely to learn the parts of the plant with the view to using a manual for the identification of the plant. Furthermore, Courses 3 and 4 were one term each, and 5 was a one-term course; also, all courses beyond 5 had practically no students in them. This is one reason why most of these courses were dropped in the catalogue of 1911-12. Course 2 in 1910-11 had 100 students; Course 3, 59; Course 4, 43; Course 5, 14; Course 8, 1; and Course 11, 2.

The courses offered in 1911-12 were as follows: Course 1, General Botany, throughout the year; Course 2, Flowering Plants, one term course; Course 3, Histology, one term course; Course 4, Plant Physiology, throughout the year; Course 5, Plant Pathology, throughout the year; Course 6, Etiology of Plants, throughout the year; Course 7, Seminar, throughout the year; Course 8, Research; Course 9, Plant Breeding; Course 10, Economic Botany. It should be stated that Course 9 was transferred from botany to horticulture.

I desire to call your attention to the change of courses

made in the year 1911-12. You will note that the first course is a course in general botany, which has to deal with all the broad, fundamental principles of botany, such as morphology, anatomy, physiology, ecology, plant breeding, forestry, and life history of representative plants. While it is stated in the catalogue that a herbarium was to be handed in, still I have not required this, and I am not in sympathy with that work, especially for general botany students, as there are so many other things of much more value than this. However, we have substituted for herbarium work a study of weeds. The students are made to know them perfectly in the field, are made acquainted with their habits and what makes a successful weed.

Course 2 is a course which is intended to acquaint an individual with the characteristics of the various orders and families of flowering plants with special reference to grasses, composites, poisonous plants, weeds, and timber trees. This course is intended for students who are specializing in entomology, forestry or botany.

Course 3 is primarily a technique course in which students are required to make their own slides, and prepare their own laboratory material for microscopic study of plant structure.

Course 4, Plant Physiology, has to do with the life processes of plants, a course which is of fundamental importance in the arid regions, as well as any other region in which the production of plants means a livelihood for certain people.

Course 5 has to deal with the plant diseases. Utah being primarily a horticultural and a cereal State, there are many problems in the disease line that confront the grower and the subject is purely an economic one which has for its purpose the prevention of disease and the production of a cleaner crop.

Course 7, Seminar, is intended purely for students who are specializing in botany.

In 1911-12 the following number of students were registered in each of the courses:

Botany 1.....	90
Botany 4.....	49
Botany 5.....	10
Botany 7.....	7
Botany 8.....	1

The courses in 1912-13 are practically those outlined in catalogue 1911-12. The following students are enrolled in the respective courses:

Botany 1.....	117
Botany 4.....	53
Botany 5.....	11
Botany 7.....	6

It should be further stated that we have had requests for Botany 2 and 3, but with all of these students and laboratory periods, it has been impossible for us to comply with these requests and give these courses either in 1911-12 or 1912-13.

Besides the teaching, the Department is undertaking some investigational work. At present, we are busy at work with the fruit spot of peaches and at this place it may be opportune to say that we have found some things about it which apparently are new to science and probably will be of considerable importance in the control of this disease. We intend the following summer to begin field experiments in its control at Brigham, as well as on the College orchard. We are also taking up some work in the isolation of soil fungi with respect to determining new forms, nitrogen fixers, and parasites that attack our cereal crops. We are also doing some work in the stinking smut of wheat, with the view to finding out more concerning its habits in our region, whether it can go over in our climate from year to year in our soil. We are also doing some work in the rosette of the apple.

We have done some work the past summer in the collection of flowering plants for the enlargement of our herbarium, as well as making a disease survey of both wild and economic plants in Utah.

The chief needs of our Department are the following: We need individual desks for our laboratory that we may insist on individual work. Individual work, after all, gives the student the greatest power and is the best educational factor for his development that I know of in the laboratory. We need more laboratory room. We need at least two rooms fitted up with individual desks solely for the purpose of botany and plant pathology. So far, we have but one room and the use of another occasionally, that is,

two afternoons a week. In this direction we are very much handicapped. We need room that we may have at least eight laboratories in Botany 1, and four in Botany 4. That would be two laboratories for each section. This would necessitate more assistance. From the looks of things, this subject is clearing up if means sufficient can be given me to supply the needs of the students. I have two advanced men who will graduate in another year who have been trained from the foundation up in botany according to my point of view. I should like to see these graduates both on the salary list and given positions as assistants the following year, that we may do more comprehensive laboratory work, the work, after all, in science, which is the most valuable to the student. We still need much equipment to make our laboratories what they should be,—microtomes, microscopes, lockers for microscopes, and so on. I trust that conditions for another year will be such that these things can be granted me.

We have a crying need on the part of students for a number of courses. We cannot put the students off beyond this year from Courses 2 and 3. The demand now is that these subjects be taught. With the two assistants that I suggest, I see my way clear so that these courses can be given the following year. We also have many students who are anxious to join the Forest Service. As such, we must fit and prepare them with ecology work. This will be a course requiring one whole year of work taking up the study of the effect of environment and the individual plant parts, as well as the plant community. There are also a number of men who desire some special morphological courses of fungi, of algae and so on. These courses will have to be introduced if we are going to meet the demand.

Respectfully submitted,

C. N. JENSEN,

Professor of Botany and Plant Pathology.

November 1, 1912.

DEPARTMENT OF CHEMISTRY.

To the President of the College:

Sir:—I submit herewith a report of the Department of Chemistry for the school years 1910-11 and 1911-12, and for the present year to October 30th.

Number of The courses offered and the number of
Students students in each course is indicated in the
Registered. following table.

	1910-11	1911-12	1912-13
Chemistry 1.....	91	90	101
Chemistry 2.....	15	19	19
Chemistry 3.....	25	51	37
Chemistry 5.....	37	64	2nd term
Chemistry 6.....	7	6	12
Chemistry 7.....	15	..	2nd term
Chemistry 8.....	..	16	2nd term
Chemistry 9.....	..	9	7
Chemistry 11.....	5	11	12
Chemistry 12.....	..	..	3
Chemistry 13.....	..	7	2nd term
	195	273	191

It will be noted that last year there was an increase of 78 students in the Department, the greatest increase being in organic and soil chemistry. This year, to date, we have nearly as many students registered as were registered throughout the year two years ago. The large classes expected during the second term in soil chemistry and physiological chemistry will no doubt make this the banner year in the number of students registered in Chemistry 1, 6, and 11.

Notwithstanding the great number of students registered in the Department, we have actual laboratory space for only 64 students. With respect to this condition, I should like to quote from my former report:

“The most crying need of the department at present is for

more laboratory space. In his report to the President in 1902, the Professor of Chemistry says, 'The number of students pursuing work in chemistry is now considerably in excess of the desk room.' Since that time provision has been made for an increase of eighteen students, while the number of students in the several courses has increased from 400% in some cases to 1,200% in others. This congested condition of the department ought to be remedied at once and I should like to urge upon you the necessity of some provision being made for the proper teaching of the subject. This condition can be relieved only by the erection of a new building,—the present quarters of the laboratory are entirely inadequate and there are no rooms in the main building large enough or suitable for conversion into chemical laboratories. The time seems opportune for the erection of one wing of a new agricultural building which would be devoted to the work in chemistry. This seems to be the only means by which relief may be had from the oppressive congested condition of the chemical department. I should like to recommend this to your careful consideration.' "

The increased number of students registered this year in the laboratory subjects clearly emphasizes the recommendations of two years ago.

The research work of the department is being rapidly prosecuted and some very important contributions have been published by the individual members of the department staff during the past two years. The most serious handicap in this line of work is the lack of library facilities.

Respectfully submitted,

ROBERT STEWART,
Professor of Chemistry.

October 30, 1912.

CORRESPONDENCE DEPARTMENT.

To the President:

Sir:—I beg to submit the following report of the Department of Correspondence Studies.

Since I took charge of the Correspondence Department, September 1, 1912, but few changes have been made in the general policy of the Department. Most of the time has been spent in acquainting myself with the system worked out by Professor Dale, and in testing this system. It has been thought better to move conservatively rather than to adopt plans which would soon need to be revised. Some minor changes have been introduced mainly in the direction of keeping the number of courses offered by correspondence down so that efficient work could be done in the courses offered.

In some cases courses have been denied to students when it was thought that the work could not be effectively done. I believe it will do the Institution and the Department more good to have ten students satisfied and effectively taught, than to have fifteen half-fed. However, the students this year are choosing over such a wide range that we shall soon be compelled to perfect a large number of courses.

The following will show the range of choice:

Agriculture.

	Students.
Agronomy 2.....	3
Agronomy 3.....	1
Agronomy 14.....	5
Agronomy 9.....	1
Animal Husbandry 2.....	1
Animal Husbandry 7.....	1
Horticulture 1.....	1
Pomology 1.....	5
Irrigation 1.....	1

 19
Home Economics.

Domestic Science 1.....	1
Domestic Arts 1.....	2

 3

Commerce.

Accounting 4	1
Economics 1	4
Economics 4	3
Economics 6	4
Economics 8	1

 13
General Science.

History 4	5
German II	1
German III	1
English 6	2
English 12	4
English 11a	9
Mathematics 2	1
Mathematics 3	1
Mathematics 6	1
Botany 1	2
Geology 2	1

 28

Last year over half of the correspondence students were in Agronomy. This year there does not seem to be the same tendency to concentrate. The large number in English is due to the fact that Professor Larsen is conducting a course at Smithfield once a week.

One new feature of the work this year is the offering of a course in journalism. This course comprises ten lessons and includes:

- (a) The Newspaper Story.
- (b) The Interview.
- (c) The Editorial.
- (d) Art and Dramatic Criticism.
- (e) Financial Review.
- (f) Book and Magazine Review.
- (g) History of Journalism.
- (h) Yellow Journalism.
- (i) Technical Journalism.
- (j) Magazine Features in the Daily Press.

So far we have not registered any students for this course but we have had a number of inquiries concerning the nature of the work. I believe it will ultimately be a success.

The Department continues to draw from a large area of country. The following will indicate this geographic distribution:

Castle Gate, Utah.....	1
Clarion, Utah	1
Fillmore, Utah	1
Fountain Green, Utah.....	2
Georgetown, Idaho	1
Gunnison, Utah	1
Grantsville, Utah	1
Heber City, Utah.....	1
Hyde Park, Utah	1
Morgan, Utah	2
Mountain View, Wyo.....	1
Murray, Utah	1
Marysville, Idaho	1
Nephi, Utah	4
Oakley, Idaho	1
Riverton, Utah	1
Roosevelt, Utah	1
Salt Lake City, Utah.....	4
Smithfield, Utah	8*
Tremonton, Utah	1
Tooele, Utah	1
Vernal, Utah	1
Washington, Utah	1

Total.....	38
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In the very near future this number will be increased. The above list shows that the Correspondence Department is still living up to its aim to carry education to the people everywhere.

The average age of the students still remains about 30 years. The following is a list of the names, ages, addresses and subjects taken by the students now registered:

*There will be more from here.

NAME	Age	Address	Subject taken
Belliston, W. T.	20	Nephi, Utah	Horticulture 1 Economics 6
Brownell, W. F.	25	Salt Lake City	Agronomy 14 Irrigation 1 Animal Husbandry 7
Burgess, Donna V.	30	Vernal, Utah	Domestic Arts 1
Bruckerman, Benjamin	21	Clarion, Utah	Horticulture 1
Clark, Walter H.	23	Georgetown, Ida.	Agronomy 2
Crook, Margaret	32	Heber City, Utah	Domestic Science 1 German II
Davis, F. S.	29	Castle Gate, Utah	Algebra 1 Botany 1
Day, C. H.	24	Fillmore, Utah	Agronomy 2 Agronomy 3 Agronomy 9 Agronomy 14 Mathematics 6
Fry, Henry B.	35	Morgan, Utah	English 12 Economics 8
Greene, J. T.	25	Salt Lake City	Plane Geometry History 4
Hall, John C.	30	Nephi, Utah	Horticulture 1 Economics 6
Holliday, Charles O.	28	Gunnison, Utah	Economics 4 English 6
Hammond, Robert L.	20	Marysville, Idaho	English 12 Agronomy 14 Poultry 1
Ingrum, Alonzo	36	Nephi, Utah	Horticulture 1 Economics 6
Johnson, Wm. O.	27	Riverton, Utah	Botany 1 Geology 2
Johnson, C. W.	33	Nephi, Utah	Horticulture 1 Economics 6
Nelson, Irvin	20	Morgan, Utah	English 12
Nisson, Willard O.	30	Washington, Utah	History 4 Agronomy 2
Neilson, A. A.	27	Oakley, Idaho	Agronomy 14
Smith, Frank S.	20	Vernal, Utah	Agronomy 14 Animal Husbandry 2
Urie, Elizabeth	20	Grantsville, Utah	English 12 Domestic Arts 1
Ajax, Mathew D.	26	Tooele, Utah	Accounting 4
Wilson, Walter R.	38	Murray R.F.D. 5	Economics 1 History 4
Lovendale, Laura	20	330 Edith Ave., Salt Lake City	History 4 Economics 4
Neeley, Ardelle	22	2203 S. 7th East, Salt Lake City	History 4 Economics 1
McCracken, Joyce	20	Smithfield, Utah	English 11b
Peterson, Violet	25	Smithfield, Utah	English 11b
Cragun, La Von	19	Smithfield, Utah	English 11b
Peterson, Lillie	21	Smithfield, Utah	English 11b
Chambers, Veda E.	22	Smithfield, Utah	English 11b
Roskelley, Maude H.	23	Smithfield, Utah	English 11b
Seamons, J. W.	34	Hyde Park, Utah	English 11b
Milligan, James	57	Smithfield, Utah	English 11b

NAME	Age	Address	Subject taken
Kirkbride, J. W.	35	Smithfield, Utah	English 11b
Dorius, J. N.	36	Fountain Green	Horticulture 1 Economics 6
Whatcott, W. H.	28	Tremonton, Utah	History 4
Desplain, C. L.	47	Fountain Green	Economics 4
Major, S. J.	24	Mtn. View, Wyo.	Economics 1

At the beginning of the year the department was handicapped by not having adequate office equipment. Since then we have purchased letter files and other equipment which have facilitated the work very materially.

The most imperative financial needs of the near future will be circulars and advertising material. The department has not, up to date, spent enough in advertising. I believe the results would justify a little more expenditure for advertising purposes.

The most important need of the Department is, as it has been in the past, a little better co-operation on the part of the Faculty. It is still very difficult to get assignments from teachers in time to satisfy the needs of students. I believe if teachers were asked to write up outlines of courses offered by correspondence just as they do other courses and somebody were made personally responsible for the work in each course, we should get better results.

We have been trying to delay the time when the question of credits should come up, but we cannot delay it any longer. It is here, and we must meet it. I think we should be in accordance with the best schools if we standardized our courses and gave a definite amount of credit per unit. I believe also that the number of credits given for correspondence work should be limited. No credit should be given for work done by any student who has not yet reached a certain definite standard of scholarship. Just what the standard should be is a matter for experience to determine.

Nothing so far has been done with the Colonists course. Here again the difficulties in the way of getting assignments have made the venture of doubtful success just at present. The idea is a good one and should be worked out at once. It is the aim of the Department to perfect this phase of the work as soon as possible.

A housekeepers' course should also be worked up in connection with the Colonists course.

So far the Department has been more than self supporting. The following is the statement:

Stamps	\$ 12.00	
Office Fixtures	44.25	
Fees from Students.....		\$125.00
Balance on hand.....	68.75	
	<hr/>	<hr/>
	\$125.00	\$125.00

\$50.00 more will be received within six days.

The following is a sample of letters we are receiving daily from people throughout the State:

Delta, Utah, Dec. 1, 1912.

"I wish you and some of your faculty would lay out a course in agriculture for me to study so that I can be an educated farmer. I will get the practical part of it on my farm. I want a course with special reference to conditions that exist here, or at least in Utah. I want to learn as much as possible about irrigation, the laying of ditches, headgates, weirs, how to lay the land out for irrigating, about farm buildings, hog raising, planting an apple orchard, pruning, spraying, etc. I have a new farm and everything is yet to do, and I want to start right so far as I can learn it from reading. Of course I will have to learn mostly from experience, but a theoretical knowledge of these things will prevent me from making any very serious blunders. At any rate, I will have nothing to unlearn.

"I hope we will be able to have a farm demonstrator down here next season. I know of no section that needs one more. We have so many new settlers here who know little about how to cultivate this land, however experienced they may have been back east."

The Department is fully justifying its existence. It has abundant possibilities, but as yet it is but faintly beginning to realize them.

Respectfully submitted,

GEO. B. HENDRICKS,

In charge Department of
Correspondence Studies.

December 2, 1912.

DEPARTMENT OF ENGLISH.

To the President of the College:

Sir:—In reply to your request of recent date permit me to present the following report of the present condition of the English department, together with an estimate of its needs during the next biennium.

The total number of students at present enrolled in the department is 620. It must be observed, however, that new students are entering every day. There is, of course, a certain amount of duplicate registration, since a few students are carrying two or more courses in English, so that the total number of individuals taking work in the department is probably about 610.

The following tables show in compact form all the statistics of the department for the years 1910-11, as well as for the current season:

TABLE I.

Subject.	No. of Students Enrolled.	
	1910-11	1911-12
English 1 (Preparatory)	30	16
English 3 (1st year High School)	211	174
English 4 (2nd year High School)	136	133
English 5 (3rd year High School) .....	..	103
English 6 (History of English Lit.)	114	43
English 7 (College Rhetoric)	66	61
English 10 (Shakespere) .....	..	4
English 11a (Short Story)	12	14
English 11b (Modern Drama)	15	13
English 12 (American Literature)	12	9
English 20 (Argumentation)	13	6
English 14 (Milton)	6	..
English 15 (General Literature) .....	..	7
English 21 (Bible as Literature)	15	..
English 22 (Elementary Elocution)	8	17
English 23 (Advanced Elocution)	6	20
English 24 (Public Speaking)	13	6
English 25 (Journalism)	8	..

The variation in the total registration is to be found chiefly in the winter course registration. In 1910-11 we had in addition to English 1 several winter sections of English 3. The same was true in 1911-12. This year we have but one small section. The above totals represent the highest point reached in the respective years. The following totals, for 1912-13, show the registration up to the second week of November.

TABLE II.

Registration in English, 1912-1913.

English 3.	First year High School English.....	183
	Mr. Walter Glenn, section 1.	
	Mr. Earl Robinson, sections 2, 4, 8.	
	Miss Amelia Manning, Section 3.	
	Mr. John H. Peterson, Section 5.	
	Mrs. Katherine Clark, sections 6, 7.	
English 4.	Second year High School English.....	116
	Miss Charlotte Kyle, sections 1, 2, 4.	
	Miss Sara Huntsman, section 3.	
	Miss Amelia Manning, sections 5, 6.	
English 5.	Third Year High School English.....	89
	Miss Sara Huntsman, sections 1, 2, 4.	
	Mrs. Katherine Clark, section 3.	
English 6.	History of English Literature.....	75
	Miss Charlotte Kyle, Section 1.	
	Professor C. Larsen, section 2.	
English 7.	College Rhetoric.....	70
	Professor C. Larsen, sections 1, 2.	
English 11a.	The Modern Short-Story.....	8
	Mrs. Katherine Clark.	
English 15.	General Literature.....	16
	Professor C. Larsen.	
English 21.	The Bible as Literature.....	15
	Professor C. Larsen.	
English 22.	First Year Elocution.....	17
	Miss Mary E. Johnson.	
English 23.	Advanced Elocution.....	11
	Miss Sara Huntsman.	
English 24.	Public Speaking.....	8
	Miss Sara Huntsman.	
English 25.	Journalism	11
	Professor F. R. Arnold.	
Total number of students in all courses.....		620

TABLE III.

Number of recitation periods per week, and number of students taught by each instructor, 1912-1913.

Christian Larsen.....	12 periods	142 students
Sara Huntsman.....	18 periods	107 students
Charlotte Kyle.....	18 periods	98 students
Katherine Clark.....	15 periods	78 students
Amelia Manning	15 periods	55 students
Earl Robinson.....	15 periods	67 students
Mary E. Johnson.....	3 periods	16 students
John H. Peterson.....	5 periods	22 students
Walter Glenn.....	5 periods	24 students
Frank R. Arnold.....	3 periods	11 students
	<hr/> 109 periods	<hr/> 620 students

It should be remembered in considering the latter table that the head of the department is also giving extension work in Smithfield and in the Logan City Schools; that Mr. Robinson and Miss Johnson are also instructors respectively in history and in physical education for girls; that owing to the absence of Professor Pedersen, who is studying at Harvard, it was found necessary to employ Mr. Glenn and Mr. Peterson, both teachers of experience, now seniors at the College, to teach one section each of first year high school English. Professor Arnold of the Modern Language department kindly consented to help tide the department over the period of Professor Pedersen's absence, by conducting, not merely the half-course in Journalism, English 25, inaugurated by him two years ago, but also by giving in the second semester the half-course in the Modern Drama, known as English 11b.

This year, as usual, the English Department gives general supervision to college theatricals and to student publications. The play selected for presentation this season is Sheridan's comedy, "The Rivals." Miss Zella Smart, who is well known to the Student Body for her coaching of last year's play, has been employed as coach again this year, and has begun work on "The Rivals."

The most crying, imperative need of the English Department is a special appropriation of about \$1,500.00 to be devoted entirely to the buying of books for the use of the students in

the department. They use no other laboratory than the Library, no other equipment than books, and in justice the Institution ought to provide them with facilities in some slight degree commensurate with those provided for students in other departments. At present, the work in every college course is hindered by the inadequacy of our library. It is still true that our collections in every field of literature are very fragmentary. The annual appropriation is so very small that the growth of the accessions in literature is almost imperceptible. At that rate we shall never be able to bring the library up to the standard of American colleges of our size. The day of departmental libraries will undoubtedly sooner or later dawn for the Utah Agricultural College. If it should seem that adequate library provisions for the students of the English Department could be achieved more quickly by that method, I should be the first to recommend the initiation of such a system. At all events, since we are gradually eliminating the high school courses and giving more and more emphasis to the college courses, I earnestly recommend that we take vigorous steps to provide adequate laboratory furnishings and supplies for college students in English.

Respectfully submitted,

CHRISTIAN LARSEN,

Professor of English.

November 9, 1912.

DEPARTMENT OF FORGING AND CARRIAGE BUILDING.

To the President of the College:

Sir: The courses offered in the Forging Department and the attendance in each course in 1910-11 were as follows:

Forging 1.	Elementary principles of forging...	13 students
Forging 2.	Advanced forging and elementary woodwork	12 students
Forging 3.	Carriage work and general black- smithing	3 students
Forging 4.	Building of an approved vehicle or implement	0 students
Forging 5.	Short course in elementary forging.	4 students
Forging 1a.	Half year course	6 students
Forging 1b.	Half year course	0 students
Winter Course	.....	10 students
Total		48 students

These courses proved very successful in developing the mechanical abilities of the students, and we built some good vehicles, but it did not fit Utah's needs. Blacksmithing, to a large extent in our State, is horseshoeing. A condition that seems to have been overlooked by the College. It was asked after by the majority of the students.

The courses offered in the Forging Department and attendance in each course in 1911-12:

Forging 1.	same as 1910-11 with the addition of shop mathematics and technology .	10 students
Forging 2.	Advanced forging and horseshoeing. The horseshoeing consisted of making shoes and nailing them on in the shop, supplemented by a lecture given each week by the Professor of Veterinary Science.....	3 students
Forging 3.	Advanced horseshoeing together with a few special exercises in carriage work	2 students
Forging 4.	Carriage work or horseshoeing.....	1 student
Forging 5.	Same as 1910-11	9 students
Forging 1a.	Same as 1910-11	5 students
Forging 1b.	Same as 1910-11	1 student
Forging 5a.	Same as 1910-11	13 students
Winter Course	.....	8 students
Total	.....	52

These courses met the needs of the students and good results were obtained in horseshoeing, but the carriage work went backwards; for the students spent most of their time at horseshoeing, leaving time for only a few special lessons in carriage work.

The adding of shop mathematics and technology was a step in the right direction. It gives the student a more intelligent view of his work.

The courses offered in the Forging Department and attendance in each course in 1912-13 up to October 25 are as follows:

Forging 1.	Same as 1911-12.....	22 students
Forging 2.	Same as 1911-12.....	6 students
Forging 3.	Same as 1911-12.....	1 student
Forging 4.	Same as 1911-12.....	1 student
Forging 5.	These students take woodwork during first term	0 students

Total 30 students

There are indications of a large number of students in the short courses.

I shall base my recommendations for the future on the assumption that the Forging Department will maintain a steady growth. I can see no reason why it should not be in a growing state like Utah, especially since there are so few places where a boy may learn something of the useful art of blacksmithing.

The change to be made in our High School department will materially change our courses. The numbers may be raised, but I am doubtful as to whether it will improve the course in forging.

The following is a census of my morning class which consists of fifteen students:

2 have finished two years high school,

1 has finished one year high school,

8 have finished district school,

4 have not finished district school,

3 are under 18 years,

7 are over 20 years,

2 18 years,

None over 22 years.

I sincerely hope that such a class will have the opportunity of taking High School subjects along with their shop work; for as yet, I am not converted to the idea of insisting or even allowing boys of this age to spend all of their time in the shops. A mechanic needs sufficient school training to acquire the habit of reading and searching for information. To me, it is not a problem of training boys so that they may serve as a piece of productive machinery, but rather that they may be able to take their place as citizens of a republic. The average mechanic is lacking in this respect.

The indications are that horseshoeing will become a permanent part of the Department. The regular forging students need and want it. There is a call for it from the Veterinary

Science students, and a few agricultural students are taking forging to prepare themselves for horseshoeing later on in the year. Horseshoeing was started last year under very favorable circumstances, but good results were obtained, not so much in number as in good work done by the students. It satisfied me that it will be well patronized when the course is properly outlined and advertised. It will take a little time to put it on a good footing.

I recommend the following changes in the shop arrangement:

1. If horseshoeing is to be successful, it must be given a shop by itself. With the present arrangements, the horse is in one shop and the forge in another; a very inconvenient and impracticable situation. Another disadvantage is that the teacher must instruct his class at the forge when there are three or four other classes at work. This makes it difficult for the students to hear and for the teacher to talk.

2. A demonstration room is needed for the general blacksmithing work. At present, it is very difficult to teach a class in forging at the forge. All the forges are in one shop, and usually there are from three to five classes or sections at work. This makes it so noisy that the students cannot hear if the teacher talks in a normal voice.

3. The Department is in need of an office in which to do the business of the Department, and keep supplies. We have no place now fit for office work, and the supplies are kept in several cases which are situated in different places in the shop.

4. The carriage shop is not a good shop for carriage work, and after careful planning, I have decided that it would fill the three mentioned requirements. If properly divided, it would make, at very little expense, an ideal horseshoeing shop, a lecture room and an office.

Four forges would have to be erected, two small partitions would make the office, the heating pipes would need changing. These changes with a wash basin in the office would make conditions very agreeable and comfortable.

5. This would leave us without a carriage shop, but if the front of the shops is raised, I think we can arrange for a carriage shop in the woodwork shops.

Respectfully submitted,

November 11, 1912.

AARON NEWAY,
Instructor in Forging.

DEPARTMENT OF GEOLOGY.

To the President of the College:

Sir:—I submit herewith a report of the Department of Geology for the present biennium, together with the estimated needs for the next two years.

The class work in the Department is all done by the Department Head whose time is partly given to the departments of mathematics, and agricultural engineering.

The method of instruction is by lecture, supplemented by reading, reports from students, laboratory and field work.

In all the Department is offering eight courses in Geology listed as follows:

- Geology 1, Physiography.
- Geology 2, General Geology.
- Geology 3, Economic Geology of the United States.
- Geology 4, Mineralogy.
- Geology 5, Agricultural Geology (origin of soils).
- Geology 6, Advanced Physiography.
- Geology 7, Petrology.
- Geology 8, Field Geology.

In previous years the Department has offered a course in fire assaying in connection with the chemical department, but the course has now been abandoned.

For the present and past year the number of students enrolled in each course is as follows:

	1911-12	1912-13
Geology 1 .....	..	5
Geology 2	67	75
Geology 3	5	..
Geology 4 .....	..	6

In addition to the regular teaching, the Department is attempting to continually make collections for the laboratory and museum. During the past two years rather valuable assortments of Utah coals and phosphate samples, with associated fossils, have been added to our collections.

Relative to the need of the Department during the coming biennium: the present teaching force will probably be sufficient if no time is given to the department of mathematics. Some

student help in the laboratory will probably be necessary but for only short intervals.

The equipment of the Department is incomplete in nearly all forms. Our petrographic specimens are very limited, and our mineralogical specimens are nowhere near complete. Considerable outlay of money should be made to make the collections at least representative of average work.

The Department is also in need of charts, maps and relief models for class room work.

I should recommend that some money be allowed each year for making collections from the nonmetalliferous economic deposits of the State, as a help to the students in economics and agriculture.

The museum equipment we have is so poor that little protection is given the specimens, and many valuable specimens have been lost on this account. The cases we have at present should be provided with glass doors and some new floor cases purchased.

The Department should have a stereopticon and some additional photographic supplies and lantern slides.

The class room used by the Department at present is not suitable as it cannot be equipped with an experimental desk and will not permit the use of lantern slides for illustrative work.

To do the most efficient work the Department should be allowed at least \$750.00 for equipment and supplies during the next two years.

Respectfully submitted,

WILLIAM PETERSON,

Professor of Geology.

November 13, 1912.

DEPARTMENT OF HISTORY.

To the President of the College:

Sir—

Courses given in 1910-11.

High School.

	No. of Students.
Ancient History	15
United States History.....	75

College.

English History	10
Modern European History.....	12
Western History	28

Courses given in 1911-12.

High School.

Ancient History	4
English History (1st Term).....	60
American Civil Government (2nd Term).....	60

College.

English History	4
Modern European History.....	26
History of Civilization.....	10
History of the West (American).....	8

Courses being given 1912-13.

High School.

English History (1st Term).....	90
American Civil Government (2nd Term).....	..

College.

English History	9
Modern European History.....	7
History of Civilization.....	32
History of the West (American).....	7

The results so far this year are encouraging, in that the students are manifesting a healthy interest in the work.

As for new courses, a college course in the History of Greece and Rome would draw a number of students, if offered. As there is a high school course in Ancient History offered in the catalogue, a college course could not very well have been worked up in the beginning of the present year while there were not enough students asking for the high school course to justify its being given.

The greatest need of the Department just now is to get more library books. The librarian informs me that the amount of money available for the History Department this year is very small. There is a fund of twenty-five dollars for the purchase of supplies for the Department, which could better be spent in putting books in the library than in buying more maps

or other equipment. If it is allowable, I should like to turn this fund in the way indicated.

Respectfully submitted,

F. D. DAINES,

November 1, 1912.

Professor of History.

DEPARTMENT OF HORTICULTURE.

To the President of the College:

Sir:—The following is a report of the Department of Horticulture for the school years 1910-11 and 1911-12.

Courses offered and the attendance in each course during the respective years:

	1910-11.	Students.
Horticulture 1.....	67	
Horticulture 1 (a winter course).....	29	
Horticulture 2.....	49	
Horticulture 3.....	21	
Horticulture 4.....	11	
Horticulture 5.....	2	
Horticulture 6.....	6	
Horticulture 7.....	9	
Total.....	194	

	1911-12.	
Horticulture 1.....	67	
Horticulture 1 (a) (winter course).....	46	
Horticulture 1 (b) (B. Y. C.).....	45	
Horticulture 1 (c) (H. S. Teachers).....	5	
Horticulture 2.....	8	
Horticulture 7.....	16	
Horticulture 9.....	11	
Horticulture 12.....	13	
Total.....	211	

1912-13.

(Prior to registration of winter course.)

Horticulture 2.....	8
Horticulture 7.....	7
Horticulture 9.....	4

During the past two years, this Department has answered approximately 2,000 various inquiries on the subject of horti-

culture, approximately 95% of which have been asked by residents of the State of Utah.

Concerning the supervision of the campus, which comes under the jurisdiction of this Department, various improvements and plantings have been made around the stock judging pavilion, gymnasium, women's building, and various other parts of the campus. As these plantings and improvements have continually enlarged the boundaries of the campus and as it seems advisable to set a higher standard in the maintenance of the College grounds, \$2,000 per year would only be barely adequate for the maintenance of the campus grounds in a creditable condition.

The Department has planted a small mixed orchard during the past year for instructional purposes, which should be materially enlarged in years to come. Laboratory room for the elementary classes in horticulture studying such subjects as apple packing and propagation of horticultural plants is very inadequate at the present time. Plans should be made in the near future to enlarge materially our laboratory facilities.

One of the most important needs of the College campus at the present time is a better system of walks and drives. The majority of the walks about the campus should be made of cement or some similar material. Along this line the College is certainly far behind the city of Logan and similar institutions, for at this time one is able to walk to the College from a mile and a half or two miles away within the city and be on cement sidewalks all the way until arriving at the campus, where during the stormy weather the walks are found in a very uncreditable condition for an institution of this sort. Estimates of the cost for installing cement in the respective walks are as follows:

Walk from Main Building to Woman's Building.....	\$ 750
South Walk	750
Main Building to the Greenhouse.....	75
Roadway from the Main Building to the Gymnasium...	1,000
Front Walk from the Main Building to the car line....	500
Women's Building to the street.....	450
In this connection, iron culverts are sadly needed at the various crossings of the walks and drives. Estimated cost	
	150
Total	\$3,675

For the future development of the Department, there should be an assistant professor added to the horticultural work to take up largely teaching and extension work that the present head might have more time for investigational work and at the same time teach a percentage of the classes in horticulture.

This covers the most urgent needs of the Department of Horticulture in its several branches.

Respectfully submitted,

LEON D. BATCHELOR,

Instructor in Horticulture.

November 2, 1912.

DEPARTMENT OF IRRIGATION AND DRAINAGE.

To the President of the College:

Sir:—The following courses were given in the Department of Irrigation and Drainage during the past two years. In 1910-11 Irrigation 1, Irrigation 2, Irrigation 5, and Hydraulics. Twenty-two students did work in Irrigation during the year.

In 1911-12 seventy-two students were registered in the Department, in one or more of the following courses which were given: Irrigation 1, Irrigation 2, Irrigation 3, Irrigation 5, and Hydraulics.

Irrigation 1 is the only course given in the Department this semester with 50 students taking the work. Other courses will be given next term.

The Department should be allowed about \$500 to cover its urgent needs for the next two years.

Respectfully submitted,

J. W. JENSEN,

Professor of Irrigation and Drainage.

December 10, 1912.

LIBRARY DEPARTMENT.

To the President of the College:

Sir:—There were 44 students enrolled in library work during the year 1911-12; these were distributed into two sections. There are 43 students enrolled at the present time for the year 1912-13; they are distributed into three sections.

The purpose of the work is not to give instructions in

Library Science but to guide the student in the use of scientific and agricultural literature and in the use of general reference books.

The following is a summary of library accessions during the period beginning November 1st, 1910, and ending November 1st, 1912:

Library Accessions—Statistical.

Books purchased	1,965
Books by gift	722
Books deposited by the U. S. Government.....	749
<hr/>	
Total books	3,434
Pamphlets by gift (including exchanges)	2,827
Pamphlets (United States Government)	4,840
<hr/>	
Total pamphlets	7,667
Total additions to the library.....	11,101

Present Strength of the Library.

Books	22,053
Pamphlets (estimated)	23,672
<hr/>	
Total	45,725

The books of the two years are classified as follows:

Cyclopedias, bibliography, etc.....	97
Periodicals	152
Philosophy and religion, sociology.....	57
Useful arts	1042
Science	694
Fine Arts	79
Literature and language, fiction.....	227
History, biography, geography.....	189
Sociology	408
Fiction	220
U. S. Public Documents (unclassified).....	269
<hr/>	
Total	3,434

On behalf of the library and the Institution, cordial acknowledgment is made of the gift to the library of the follow-

ing works of art: "The Willows," in oil, by Moser, presented by the Agricultural College Woman's Club. "The Oak," in oil, presented by the artist, John H. Moser. The following oils were purchased: "The Corn Field," Calvin Fletcher; "Mountain Sheep," by Powell, and "Autumn," by Fairbanks. The portraits, in oil, of the four former presidents of the Institution, are now hanging on the walls of the library.

The library now receives 112 periodicals for which subscription is paid; 47 periodicals are sent as gifts and in exchange; two newspapers are sent on subscription, while sixty local papers are sent gratis to the library.

Conditions are far from ideal in the library. Reading room accommodations are not sufficiently spacious for some hours of the day even now. If attendance at the School continues to increase as it has during the past two years we shall find it necessary to have more reading rooms, and shall have hopes very soon for a separate library building.

The increase in registration of students at the Institution means an increase in demands on the library—the additional service of one full time assistant will be necessary for the library administration the following year.

The foremost need of the library is more books and especially more periodicals. Probably the most valuable literature to scientific agricultural libraries is serial in character, including publications sent gratis—the bulletins and reports of government departments and state stations, and boards—as well as the journals and reports of learned societies and the regular scientific periodicals. The latter group of publications can be secured only by purchase. To be useful as reference material complete sets, which are often very expensive and rare, must be obtained. They must then be bound and preserved in usable form. This library is particularly weak in these publications.

Besides the regular society journals and periodicals dealing directly with agriculture, the efficient agricultural library must have the journals representing those sciences closely related to and underlying agriculture. These include nearly all sciences, particularly the biological sciences, anatomy, physiology, bacteriology, botany, zoology, and also physics, chemistry and geology.

The library of the Agricultural College should contain the best collection possible of the literature on the special subjects

for which the Institution stands—Agriculture, in general. Utah, as a pioneer irrigation state, should have in its State College agricultural library an exhaustive collection of the publications of the world relating to irrigation and dry-farming.

To supply the demands of each department in its efforts to do effectual work in teaching and research, to keep a certain balance in the general library collection and to increase the extent of this special collection of publications on irrigation and dry-farming will be the chief aim of the library administration during the coming biennial.

Respectfully submitted,

ELIZABETH C. SMITH,
Librarian.

December 10, 1912.

DEPARTMENT OF MACHINE IRON WORK.

To the President of the College:

Sir:—In response to your request, I submit the following report.

Courses offered each year and number of students in each, as per table below:

COURSE	Number of Students			Remarks
	1910-11	1911-12	1912-13	
Mechanical Drawing 2	2	19	13	Offered first time to 2d yr. M. A. students
Mechanical Drawing 3	8	11	12	Two sections
Mechanical Drawing 4	4	3	2	
Mechanical Drawing 5	1	0	2	Elementary descriptive geometry
Machine Work 1	24	15	9	13 have registered to date, Oct. 16, 1912
Machine Work 2	5	3	3	
Machine Work 3	0	1	1	
Machine Work 4	1	0	0	These courses were
Shop Mathematics 1 . . . . .	..	15	9	given for the first
Technology 1 . . . . .	..	15	8	time in 1911-1912

The results obtained in drafting in 1910-11 were average, those in 1911-12 somewhat below the average. The present prospects indicate very good work this year. Good work has been done in the machine shop. The above table shows that but few students return for third and fourth year work. Many get enough practical information to enable them to obtain such

work for good wages at the end of the first two years, as seems to satisfy them.

The interest taken in Shop Mathematics and Technology, by the students, indicates that a step was taken in the right direction by requiring these courses as a complement to the purely practical work of the shop.

There should now be a course in Elementary Mechanism required of machine work students, if not of students studying farm mechanics, especially since the high school work is to be eliminated. This subject would help to make a college course. Nowhere in their schedule, do students in machine work get organized instruction regarding the different kinds of motion, the means of obtaining desired movements or the application of the same in existing machinery. A knowledge of mechanism would assist students in understanding Mechanics, another subject which should receive more attention than it now does, by way of application to work in hand.

The kind of information offered in such subjects as Shop Mathematics, Technology, Mechanism and Mechanics will equip students more efficiently, as mechanics, managers, and masters in the productive industries, than practical work alone. It will also give better preparation to prospective teachers in such pursuits. Such information also makes any work with machinery interesting and profitable. This once realized, by students, will hold more of them for the work of the third and fourth years, mechanism and mechanics necessarily coming at such time.

If mechanism and mechanics be offered provision should be made for teaching them, either by relieving some of those now employed of part of the present work or by obtaining a teacher for the new work.

The foundry should be used, at least enough to furnish castings for the machine shop, if not for instructional purposes, but the present shop force is occupied quite fully.

It is difficult at this time to know what effect the elimination of the High School courses will have in the Mechanic Arts school, consequently the requirements as to more room are difficult to specify. However, there is need of some more good class and office room in the Mechanic Arts building, and if the laboratory work in Agricultural Engineering (i. e., Irrigation, Surveying and Farm Mechanics) be moved to this build-

ing, then certainly more room will be needed. The room required could be obtained most easily and cheaply by raising the north and south wings of the front part of the Mechanic Arts Building one story. The expense involved would be about \$11,000. The present leaky condition of the roof, which will involve considerable expense to repair, is worth considering in this connection.

It is known that a number of transfers and many other changes from the original registrations are made each year in order to place students where they can work efficiently. The applicant at registration time should receive information that would enable him to decide more certainly on a line of work he could successfully and profitably follow. Information concerning the nature of the vocations commonly followed should be given, pointing out the difficulties, advantages, healthfulness, etc., connected with each. Also the training and natural adaptability of the individual, which would be an advantage in making him successful in a given line of work and unsuccessful in some other occupation, should be pointed out. Some of those who come each year for machine work, are ill adapted by nature and training for such work. And, if I mistake not, the same conditions exist in other departments. It is known that a certain build and temperament of a horse is not equally adapted for all purposes. Some types of cattle are chosen for beef, other types for milk, on this principle. The horse, cow and chicken that will serve a certain purpose, can be selected easily by those who know the relation between adaptability and requirement. The human being is subject to similar laws and reacts accordingly. He, too, may be placed where he can serve most successfully, if assisted by those acquainted with the requirements of a line of work and the make-up of the person. A vocational director (or committee appointed for the purpose) would be a benefit to students and the Institution, where the motto, "Labor is Life," is held out.

Respectfully submitted,

E. P. PULLEY,

Instructor in Mechanical Drawing and Machine Work.
November 16, 1912.

DEPARTMENT OF MATHEMATICS.

To the President of the College:

Sir:—The total number of students now enrolled in the Department of Mathematics is 404, a few more than have been registered for mathematics the two years preceding, the registration for those years being 375 in 1911, and 328 in 1911-12.

Until this year a class has been given in mathematics 1 (arithmetic), but this year only two students applied for this work and no class has been organized.

The following table gives a comparison of the courses given and the number of students in the respective courses for the two preceding years and the present year to November 8:

COURSE.	STUDENTS.		
	1910-11	1911-12	1912-13
Mathematics 1	35	15	0
Mathematics	0	12	8
(winter course)			
Mathematics 2	182	162	185
Mathematics 4 or 5	70	7	18
(College algebra)			
Mathematics 6	66	43	56
(Trigonometry)			
Mathematics 7	7	6	9
(Analytic Geometry)			
(Differential and Integral Calculus)			

The courses in college algebra and trigonometry until 1911 have been required in all courses leading to a degree. Since 1911 this requirement has been eliminated from many of the degree courses.

All sections in mathematics have been kept reasonably small, thus enabling the teacher to give considerable attention to the individual students. There is an average of about 25 students in each section in the Department.

About \$200 should be allowed the Department for necessities during the next two years.

Respectfully submitted,

J. W. JENSEN,
Professor of Mathematics.

December 10, 1912.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

To the President of the College:

Sir—

(a) I have given 19 hours practical instruction in schools of soldier, squad and Company, Inf. D. R. and 2 hours theoretical instruction, total 21 hours. All men having had one or more years' instructions, excepting those used as assistant instructors, were assigned to the 1st Platoon, Co. "C," in order that as soon as they become proficient in drill they may be withdrawn from the Battalion at any time and given more advanced work.

(b) Total enrolled.

1910-11	1911-12	1912-13
129	122	201

This does not include ten (10) band men, who have completed their military course. Average attendance, 80%.

(c) The principal need of the Military Department is a drill hall. The only place available for indoor instruction during inclement weather (the greater part of the school year) is the large gymnasium, and regulations governing the use of the gymnasium are such that they practically prohibit its use. I refer to the regulations which prohibits the wearing of shoes and the touching of the guns to the floor. To comply with the first part of this regulation each cadet will be required to provide himself with gymnasium shoes, but under the present method of ordering uniforms and shoes, it takes about three months to equip the Battalion. After the Battalion is equipped with gymnasium shoes and it becomes necessary to drill inside, a great amount of valuable time will be consumed in changing shoes before and after drill. If a storm should come up while the Battalion is drilling outside, it would never pay to continue to drill indoors, on account of the time consumed in changing shoes. The only other urgent need of the Military Department is an outdoor target range. This should be completed by April 1st, 1913. The War Department will furnish two new pattern sliding targets with frames and carriages complete. (Cost about \$70.00.) I estimate that the cost of setting up the

targets, both labor and material, will be about \$75.00, providing the use of one college team is allowed.

Respectfully submitted,

ROBERT J. BINFORD,

Professor of Military Science and Tactics.

November 1, 1912.

DEPARTMENT OF MODERN LANGUAGES.

To the President of the College:

Sir:—I have the honor to submit to you the following report of the Department of Modern Languages and Latin. The Department has shown a healthy growth the past two years, the registration for 1911 being 203, and for 1912 there are 233, the greatest increase being in French I and German II. The former has gone from 20 to 35, and the latter from 36 to 59.

For the first time in the history of the Department the work has required the full time of two men, one doing 19 hours of class work per week and the other 22. The smallest registration has been in the two electives in Latin and in the two in Spanish, in which characteristic we resemble all the other agricultural colleges, and it is the wish of the Department to offer these courses in alternate electives, so that only one course of each will be given yearly.

In addition to its regular work, the Department is helping the English Department by offering a course in Journalism which is being taken by twelve students.

Respectfully submitted,

FRANK R. ARNOLD,

Professor of Modern Languages.

October 31, 1912.

DEPARTMENT OF MUSIC.

To the President of the College:

Sir:—Herewith submitted is the report of the Music Department of the Utah Agricultural College for the Biennium 1910-1912 and to Oct. 25, 1912, as per your request.

(a) The courses offered are:

1. Choir; band; orchestra; mandolin and Guitar. Also Glee Club, Quartet (vocal), and String Quartet. The foregoing are general and free to students of college.

2. Individual private work is also given in voice training, pianoforte, violin, and harmony and composition, violoncello, cornet and other orchestral and band instruments.

The enrollment has been very fair, totaling..... 525

For 1910-11—

Choir	72
Band	39
Orchestra	14
Mandolin and Guitar.....	6
Miscellaneous	32
Total.....	163

1911-12—

Choir	67
Band	32
Orchestra	16
Mandolin and Guitar.....	10
Miscellaneous	65
Total.....	190

1912 to Oct. 25—

Choir	60
Band	30
Orchestra	27
Mandolin and Guitar.....	10
Miscellaneous	45
Total.....	172

We need larger quarters and trust some day the Department can be given a large room for exclusive use of Band and Orchestra.

The music required for commencement and various college functions is practically all furnished by the students and faculty members of our Department.

Respectfully submitted,

G. W. THATCHER,

Director of Department of Music.

DEPARTMENT OF PHYSICAL EDUCATION.

MEN'S SECTION.

To the President of the College:

Sir:—During the fall months of the school year 1910-11, the College football team played six games, defeating the All Stars, Ogden High School, University of Montana, Montana State School of Mines, Montana Agricultural College, and was defeated by the University of Utah. There was a class team championship in football, in which three games were played between different classes of the school, and in all over sixty men participated in football during the season.

Twenty track men took exercises on the running track on days when the weather would permit, and considerable interest was manifested in Tennis by the students.

Immediately after the football season a series of basketball games was started between the six classes of the school and fifty-two games were played. Over fifty students took part in these games. The College Basketball team practiced daily for two months and played eight games, winning four and being defeated in four. Fifteen students practiced on this squad.

In the Spring twenty baseball men practiced daily and the College baseball team played twelve games, eight of which they won.

Thirty men participated in track athletics and practiced daily during the Spring months. There were five track meets held, three meets among our own students, a dual meet with the Brigham Young University and the State Track meet, both of which were won by the Agricultural College.

During the Fall months of 1911, a class in physical training was organized for the first year High School students. This class had sixty-three members and was given work in Swedish Gymnastics and gymnastic games and met five times a week until the weather made it impossible to do work out of doors.

Football again received the most attention and was participated in by about seventy-five men. There were thirty-five on the main team squad and over forty played on the class teams. The College team played five games, defeating the All

Stars, Colorado Agricultural College, Academy of Idaho, Montana Agricultural College and the University of Montana.

We were compelled to give up the class team basketball games on account of the old gymnasium being turned into art rooms and having no place to play. Twenty basketball men practiced three times a week at the B. Y. C. Gymnasium and out of the eight games played by the College Team, six were lost.

Thirty men played baseball during the Spring months and the College team won four out of the six games played.

Forty men participated in track athletics and five track meets were held during the season. The College team defeated the B. Y. C. and won second place in the State Meet, but was defeated in Dual Meets by the Brigham Young University and the University of Utah.

During the Summer School of 1912 a course in Play Ground Athletics and games was given which was attended by forty students. An hour each day was set aside as a play hour, during which time games and athletic sports were played by the men and women together. A course of Swedish Gymnastics was given to eight students in the gymnasium and an average of seventy persons took advantage of the swimming pool each day. During the Summer School, fifteen boys learned to swim.

The last week of Summer School the swimming pool was kept open evenings for the general public, and fifty-one townspeople availed themselves of the opportunity of using the pool.

Up to October 25th, of this year, there have been forty-three men playing football and the College team has played four games, two of which were ours.

There are 107 first year high school students in the physical training class which meets five times a week. These students are required to take a physical examination.

Over thirty students play basketball in the gymnasium daily and from the beginning of school until October 25th, there have been 3,551 baths taken at the gymnasium.

The Department is greatly in need of gymnasium apparatus and at least \$2,500.00 should be spent for this purpose.

The Department is also in need of an assistant to aid in the physical training work in the Fall and Spring when so much of my time is taken up with outdoor athletics, and also to

aid with the additional classes that will be organized during the Winter months.

Respectfully submitted,

CLAYTON T. TEETZEL,
Professor of Physical Education for Men.

WOMEN'S SECTION.

To the President of the College:

Sir:—In reporting the Department of Physical Education for Women I feel very much at a loss to know just what to say, as I am new to the Institution and assisting in the opening of a new building.

Miss Stewart for the year 1910-11 reports as follows: About 125 women enrolled. A course of fifteen lectures on personal hygiene prefaced the floor work. Each girl was given a physical examination. Some work in medical gymnastics was also given to the girls in need of special attention. A very successful year considering the disadvantages in the old attic gymnasium.

Miss Smart for the year 1911-12 reports three sections with about thirty girls in each section. On account of not having a gymnasium out-of-door sports were supervised until the middle of December, when the snow came, making it impossible to continue the work.

At present we have 152 students registered and are offering swimming and two courses in physical training. Physical Education (a) for high school students, three sections; Physical Education (1) for college women, one section.

The Department is growing rapidly. New classes are being discussed and organized. Logan public school teachers have met three times for evening classes but are not registered because they have not yet completed their required membership of thirty to justify the permanent organization of an evening class. Evening classes for Logan women will also be offered about the last of November.

Dancing clubs, swimming clubs and athletic clubs are being discussed but plans for them are not definite as yet.

Physical examinations are being conducted as rapidly as my little spare time will permit. More individual attention should be given to each girl. I find from physical examinations that the girls are greatly in need of medical attention and

specialized exercises for their special needs. I am at present too much employed in class work to do justice to our women in that respect.

I need an assistant to take off my hands such minor work as teaching of swimming, checking of towels and lockers, thereby giving me more time to look after the health of our girls. The Department needs apparatus for medical gymnastics and facilities for out-of-door sports.

With our new gymnasium I feel that our department is full of possibilities and I hope to make it serve the needs of our women to its utmost capacity.

Respectfully submitted,

MARY E. JOHNSON,
Instructor in Physical Education for Women.

DEPARTMENT OF PHYSICS.

To the President of the College:

Sir:—During the school year of 1910-11, the following work in Physics was given:

Physics 1, Elementary Physics Sec. 1..	46 students	Prof. West
Physics 1, Elementary Physics Sec. 2..	27 students	Prof. West
Physics 1, Elementary Physics Sec. 3..	28 students	Prof. West
Physics 3, College Physics.....	5 students	Prof. West
Physics 5, Agricultural Physics.....	7 students	Prof. West
Physics 8, Meteorology.....	5 students	Prof. West

At present the following work is under way:

Physics 1, Elementary Physics Sec. 1..	40 students	Prof. West
Physics 1, Elementary Physics Sec. 2..	46 students	Prof. West
Physics 5, Chemical Physics.....	6 students	Prof. West
Physics 6, Agricultural Physics.....	13 students	Prof. West
Physics 7, Household Physics.....	8 students	Prof. West
Physics 9, Mathematical Physics.....	5 students	Prof. West

The number of students doing advanced work in Physics has increased in the last three years from 17 to 29. All the class work is done by the writer, but by alternating the courses from year to year the student is able to do considerable advanced work. Mr. L. A. Richardson assists in the laboratory work.

There is but one laboratory in which all the work is done, and it is unduly crowded. There is no dark room for the work in the study of light, and it is quite impossible to carry on any but the most elementary work in electricity and magnetism because of the jarring of the building. For these reasons the Department badly needs new quarters where solid peers reaching into the ground eliminate the vibration and where ample room is provided so that two classes need not meet for laboratory work in the same room.

Because of the small amount of apparatus we have for doing the work in applied electricity we should have a little more than the usual amount of money set aside for our department. To do the work well next year we should have \$750.00, together with \$250.00 for the standard government apparatus for meteorological observations, making \$1,000.00 in all.

Respectfully submitted,

FRANK L. WEST,
Professor of Physics.

DEPARTMENT OF POULTRY HUSBANDRY.

To the President of the College:

Sir:—During the past biennium, the work of the Poultry Department has been considerably increased and strengthened. Besides the regular work in poultry which is required of agricultural students special courses in Incubation and Poultry Management, have been given to advanced students during the Spring term, as well as short courses in Incubation each year, in which as many students have been enrolled as there are accommodations for in the present incubation cellar.

The amount of poultry teaching required for the next biennium will be greater than that given in the past, as, besides the regular work now given, the short course in Agriculture offers a five-hour course in Poultry for one-half year, and as the work develops more advanced work will undoubtedly be required. The Poultry industry in the State is increasing in value and the people are awakening to the possibilities of modern equipment and methods, indicating that the work that has been done is bringing results. The opportunities for the poultry specialist are increasing yearly. The number of requests coming in each year for men trained in this line are much greater than the supply of available men and will be for some

time. The institution, therefore, that prepares itself to turn out men to meet this demand will be able to place its graduates under very favorable conditions.

To meet the increased needs of the Poultry work and place the Department in a position to offer thorough training in advanced work, considerable equipment is needed. Probably the most important of these is provision for a number of the different commercial breeds of poultry so that the student might become familiar with the characteristics and method of handling the different types, and to be able to select the type which would meet the particular needs of his location. The Experiment Station is at the present time maintaining only two strains, both of them for their egg laying qualities, while for the College work a few of the best of the meat strains and one or two dual purpose strains would be added.

For advanced work in Poultry, a large amount of genetic work is required. For many lines of this work, considerable laboratory space is desirable, and some of the simpler laboratory apparatus, and instruments of precision will be necessary.

Summary of the Needs of the Department:

For specimens of the different breeds, colony houses and runs, together with their maintenance.....	\$600
For laboratory apparatus, measuring and recording devices, supplies, etc.....	400
For anatomical embryological models, chick and egg, oviduct, etc.	160

Respectfully submitted,

G. M. TURPIN,

Poultry Husbandman.

December 30, 1912.

DEPARTMENT OF VETERINARY SCIENCE.

To the President of the College:

Sir:—During 1910-11, there were five courses offered in this Department, as follows:

	No. of Students	
	1st term	2nd term
Veterinary Science I.....	37	11
Veterinary Science II.....	7	7
Veterinary Science III.....	6	6
Obstetrics .....	..	6
Dissection	7	7
Clinic	43	24

In connection with the above, I also had charge of the work in Bacteriology, with 17 students first, and 24 students second term.

During 1911-12, six courses were offered, as follows:

	No. of Students	
	1st term	2nd term
Veterinary Science I.....	28	16
Veterinary Science II.....	8	8
Veterinary Science III.....	7	7
Horseshoeing	11	11
Winter Course, Veterinary I.....	..	27
Clinic	45	32

This year, we have the following:

Veterinary Science I.....	15
Veterinary Science II.....	6
Veterinary Science III.....	9
Dissection	6
Horseshoeing	22
Winter Course	24

Outside of the required courses in Veterinary Science, this Department offers enough work along this line to qualify a student to get one year's credit in some accredited Veterinary school. All who pass up the first year here have been able to get full credit for the work performed in the schools they have entered.

Outside of the regular class work, I have been helping out in Farmers' Institutes in different parts of the State, also attending to a large correspondence, answering questions along veterinary lines and helping to check outbreaks of disease. I have looked after the health of the entire College herd of animals. In the work with the College animals, I am often somewhat handicapped, as I am called in when there is trouble or an animal is sick and as a rule do not have a chance to have the trouble avoided or to take proper precautions and sanitary measures to overcome any of the conditions arising with the animals at the barns.

All students taking any of the courses in Veterinary Science are required to attend clinic once a week at the veterinary hospital. Here the student gets the practical experience

with diseases and the method of treating them. We have had as many as fifty animals presented at one of these clinics for diagnosis and treatment. In all of this work we have been compelled to work out in the open regardless of the weather, rain or snow. We have been exposed to these conditions, often getting wet through and thus endangering health and greatly detracting from the popularity of this work. The greatest need of this Department is a suitable place to hold clinic. There should be a shed or building of some kind for this purpose and the grounds should be enclosed by a high board fence to permit of privacy in this work.

In former reports, I have also mentioned the necessity of an isolation hospital, some place to take our own animals from the horse and cattle barns when they are affected with some disease, and keep them away from the others until the cause and nature of the trouble is determined.

There is probably no department in an agricultural college where different breeds of good animals are kept and where instruction is given regarding these animals that is of greater importance than Veterinary Science. For the improvement of stock and the numerous diseases that are at present prevalent among livestock, it goes without saying that all students should be more or less familiar with the common ailments of animals and also be able to tell when it is necessary to call in professional aid for them.

As to the work of the Veterinary Department, I would suggest that we continue to offer enough work so that students may get one year's credit in any of the veterinary schools they wish to enter, that we have provided for us a suitable place to hold clinic so that efficient work along this line could be done in order that the students may get practical knowledge of the work, and that this place be properly equipped with the necessary instruments and demonstration material so that efficient work in this line may be accomplished.

Respectfully submitted,

H. J. FREDERICK,
Veterinarian.

DEPARTMENT OF WOOD WORK.

To the President of the College:

Sir:—I herewith submit to you the following report from the Wood Work Department, for the past two years, and up to November 1, 1912, as per request.

The attendance for the past two years:

Four Year Course.			
1910-11		1911-12	
1st Year.....	40	1st Year.....	17
2nd Year.....	7	2nd Year.....	7
3rd Year.....	3	3rd Year.....	3
4th Year.....	2	4th Year.....	..
<hr/>		<hr/>	
52		27	

Winter Course.	
1910-11	1911-12
28.....	26
Carpentry 5 (for Agricultural students).	
1910-11	1911-12
28.....	22

Beginning with the present year, we are offering, besides our regular courses already mentioned, a new course in Mechanic Arts leading to a degree of B. S. This course is specifically adapted for teachers in manual training; and already several of our students are working for a degree in this course.

Besides our regular Winter Course, a purely practical course is offered, and a good attendance is expected.

We have at the present date 32 Mechanic Arts students, which is nearly double the number of last year at this time.

The work in the Department is done on a sound and progressive basis, and the results have been very satisfactory. Without boasting, we can say, that the work is on a par with the best we have seen, and far above some that we have seen.

For the past four years, we have tried to introduce wood carving, but with little or no results, save the work of the teacher, which speaks for itself.

Needs of the Department.

We need an assistant.

For equipment and supplies for the coming two years we shall need \$2,500.

Hitherto, we have had no variety in woods, only pine and oak; with the above amount, we shall be able to obtain a small variety of the fancy goods. This will stimulate interest, and also raise the standard of our exhibits.

Buildings.

The roofs on all the shop buildings are in a bad condition, notwithstanding last summer's repairs. They leak in nearly all the old places and several new ones. The roofs must, therefore, be replaced next season, and as more rooms are needed, we urge that another story be added to the front of the Mechanic Arts Building. It is obvious that this will be cheaper than to erect a new building. A rough estimate of the cost of the new addition would be about \$12,000.

The detailed need of the new space is as follows:

1. A class room for lectures and demonstration. We have none at present.
2. An office for the Department.
3. Draughting rooms.
4. Exhibit Room. We have at present no room for exhibit. The front room, now being used, but not adapted for shop work, would make an excellent exhibit room for all departments.

For some time we have been in need of these changes, but from the present outlook they become imperative.

Respectfully submitted,

A. J. HANSEN,

Assistant Professor of Mechanic Arts.

November 1, 1912.

DEPARTMENT OF ZOOLOGY AND ENTOMOLOGY.

To the President of the College:

Sir:—The Department of Zoology and Entomology has been in the past two years showing steady increases, especially in the number of college students entering its classes. Owing to the removal of the course in general zoology (Zoology 2) from the Freshman and Sophomore years to the third High School, the number of students in this course during the year 1911-12 has greatly increased, since the third year and Freshman students of 1910-11 took the subject with the third year students of 1911-12.

At the beginning of the year 1911-12, a new department was created in the College, that of Bacteriology and Physiology, and Zoology 1 (now Physiology 1) was removed to that department. We have lent the department a number of our microscopes, slides, skeletons, manikins, etc.

In the second semester of 1911-12, for the first time a course in Eugenics was offered. The enrollment, entirely elective, reached 33. It is believed that this Institution is the first in America to offer a regular course in this work. The increase in interest in the theories and laws governing animal and plant breeding work and those which relate to the human race may be seen by the large enrollment in Zoology 3 the present year.

The number of students electing advanced courses and specializing in Entomology is increasing year by year. The Entomological Department shares equally with all lines of agriculture in bringing about cleaner and more perfect crops. There is a large field in the West for horticultural inspectors and trained entomologists, and this Institution is so located that we should here develop a department that will bring men desiring this work to us for their training. The entomological libraries of the Director of the Experiment Station and of the head of this Department are available to students electing Entomology or Zoology.

The following summary is a resume of the classes and students for the years 1910-11, 1911-12, and the first semester of 1912-13:

Zoology.
1910-11.

Section.	Number of Students.			
	1st term	Total	2nd term	Total
1	36		38	
2	21		23	
3	26		25	
4	18	101	..	86
1	26		24	
2	34		31	
3 .....	..		..
4 .....	..	60	..	55
Teachers			24	24
Teachers			7	7

Entomology.

1	44	44	..	
Winter Course	8	8	8	8
Total		220		180
Total in H. S. Courses		205		141
Total in College Courses		151		39

Zoology.
1911-13.

Removed to Department of Bacteriology and Physiology.
Sections 1, 2, 3 and 4.

Zoology.
1911-12.

1	37		25	
2	24		31	
3	25		221	
4	18		18	
Teachers	2	106	2	97
Teachers	22			
Teachers	1	23		
Teachers			32	
Teachers			1	32
Teachers	1	1	1	1
Teachers			5	5

Entomology.

Section.	Number of Students.			
	1st term	Total	2nd term	Total
1	19		14	
Winter Course	23	42		14
Winter Course	9	9	8	8
Winter Course	3	3	3	3
Total		184		162
Total in H. S. Course.....		148		111
Total in College Courses.....		36		50

Zoology.

1912-13.

1	28	
2	22	
3	18	
Total		68.
Teachers	62	
Teachers	11	73
Teachers	4	4

Entomology.

1	17	17
Winter Course	3	3
Winter Course	9	9
Winter Course	3	3
Total		184
Total High School Courses.....		85
Total College Courses.....		99

It will be noticed that the percentage of High School students in classes is now on the decrease and that the College students have greatly increased in the last two years. We have in our classes in the department this semester 57 seniors, 21 juniors, 19 sophomores, and 12 freshmen, as compared with 28 seniors, 37 juniors, 29 sophomores, and 4 freshmen and 52 high school students last year. Several of these college students are attending more than one course in the Department.

The department, besides the work of teaching, has charge of the Zoological Museum. The contents of the cases in this museum have all been rearranged and labeled by Mr. Nelsen.

They are, however, very crowded and some valuable and instructive preparations cannot be placed on exhibition on account of lack of room and cases in which to put them. Many students and visitors spend considerable time studying the collections, and it is our endeavor to secure more of the Utah birds and animals for the museum. A large number of Utah insects are being added to the entomological collection and boxes showing the life history of the more important injurious insects are kept on exhibit.

The head of the department has had charge of College exhibits for the past two years and this, with other committee work, occupies considerable time. Some time has been spent in extension lectures and Farmers' Institute work throughout the State and on the correspondence courses given by the department. Each year the course in Horticultural Inspection grows and demands more time and apparatus. The correspondence of the department is continually increasing, especially along Entomological and Eugenics lines.

In this State we have unequalled opportunity for the study of characters of the human race. Some work has been accomplished along this line during the past year, but we feel that the importance of the work is so great that we should secure as much as possible of this valuable data before it is too late. Part time of one or more of our advanced students or graduates could be well spent during a portion of the year collecting and assembling this data, the remainder of the time being occupied in aiding in the laboratory and teaching work of the department.

It will require, in order to handle adequately the teaching of the department, the following teaching force: Head of the department one-half time (one-half time in the Experiment Station), one instructor full time, one assistant full time. This will require a salary roll of about \$3400 a year on our basis.

In this, and doubtless other scientific departments, a system of fellowships or a scholarship will to a great extent aid the department in handling the detailed work in the laboratory and at the same time provide excellent training each year to one or more advanced students. From these we could later choose our assistants and also supply other institutions with men who we know can handle the work. These men could be paid for one-third to one-half of their time.

An insectary is seriously needed for the entomological

classes, in which to care for specimens used in illustrating the laws of heredity. At present we have to use the laboratory for this purpose, often causing serious inconvenience and overcrowding rooms which are already well filled. Each year there is also a loss during the winter of a majority of our living specimens.

A photomicrographic and drawing and projection apparatus would be of great service in our work. With these, permanent records can be made of microscopic objects for use in advanced classes, and lantern slides prepared for use. Apparatus of this kind would be serviceable for use in several of the scientific departments. Some new and more modern laboratory tables are needed in all of our laboratories.

The following is a general statement of the equipment and supplies that will be needed in the coming biennium:

EQUIPMENT.

10 microscopes	\$300
Models of insect anatomy.....	50
Embryological slides	50
Drawing, projection and photomicrographic apparatus	250
Skeletons and animals museum.....	150
Museum cases	125
Museum glassware	100
Eugenics apparatus and filing cases.....	100
	<hr/>
	\$1,200

SUPPLIES.

Zoology and Embryology.....	250
Eugenics	100
Entomological supplies	100
	<hr/>
	\$450

Respectfully submitted,

E. G. TITUS,

Professor of Zoology and Entomology.

November 1, 1912.

REPORT OF THE SUPERINTENDENT OF BUILDINGS.

To the President of the College:

Sir—During the past two years numerous improvements and repairs in all buildings of the Institution have been made. One building, the Gymnasium, has been completed during the last year and another, the new Heating Plant is nearing completion; there have also been built this summer three small though substantial toilet houses at the cottages. Besides these a number of small portable poultry houses and hog pens have been built by the respective departments. A large and very substantial cattle shed has been completed at the cattle barns.

The quite extensive repairs and alterations made necessary by the removal of the house now occupied by the Agronomist from the present site of the Gymnasium to a more suitable place and one campus, and the addition of one room to one of the cottages should also be mentioned as work done during the last two years. At the entrance to the dairy a room sufficiently large to hold a good sized milk vat has been completed during the last summer.

In numerous rooms needed repairs of walls and ceilings have been made. The faculty room, the library, the art rooms, the cafeteria, the dairy, the large lecture room, the administrative offices and a number of class rooms have been painted entirely. Considerable painting has been done in nearly all of the buildings, including the roofs of the Woman's Building and the Mechanic Arts building. The front hall and nearly all of the hall of the second floor of the Main Building have been relaid with maple flooring. Skylights have been put in the roof of the Mechanic Arts Building. Many other repairs might be mentioned, but suffice it to say that we have endeavored to keep all the buildings in good repair and the furniture in good serviceable condition.

As to some of the most urgent needs of the immediate future, let me call your attention to the condition of the roof of the Mechanic Arts Building. The roofing as you know is a very soft roofing paper, already partly decomposed, and considerable trouble has been experienced with leaks throughout the building. I have no doubt but that the roofing will have to be replaced before another school year and it would seem an opportune time to add another story to the building inasmuch

as more room is needed for the various departments in the building. The Greenhouses are also badly in need of some repairs, particularly as to glass and painting.

Considerable painting, both outside and in side the various buildings, will be needed in the near future. Many of the rooms in the south wing of the Main Building are badly in need of new floors. An elevator in the Main Building, located so that it could be used in delivering freight, etc., on the various floors would be an improvement over the present method.

The department is in need of some tools in order that repair work may be done at such times when mechanical labor is not employed.

Respectfully submitted,

R. O. LARSEN,

November 1, 1912.

Superintendent of Buildings.

REPORT OF THE SUPERINTENDENT OF GROUNDS, HEATING PLANT AND WATER WORKS.

To the President of the College:

Sir: I herewith submit my biennial report for the past two years, as Superintendent of Grounds, Steam Heat, Water Works and Electrical Plant.

The new boiler house, with three new 150 horse power boilers, with stoker coal bins, and tunnel connecting the Main Building, is almost completed, and will fill a much needed want for sufficient heating of the buildings.

The retaining wall at the Woman's Building also has been built and grading done, giving the Building approach a much better grade and doing away with the steep bank, which has been objected to so long. Further to improve the Building, I would recommend that cement walks be put in around the Building and up to the Station Building, costing about \$750.00.

NEEDS FOR TWO YEARS.

STEAM HEAT.

Fuel for two years.....	\$11,000.00
Two men firing and helping repair steam plant....	2,500.00
Changes and Repairs on plant.....	1,000.00
Tunnel from south end of Main Building to the Machanic Arts Building	600.00
Oil waste, packing, etc.,.....	200.00
Tools for firing, cleaning, etc. Wrenches.....	200.00

ELECTRIC LIGHT AND POWER.

Two men at \$600.00 a year each.....	2,400.00
Repairs on lines, wire, poles, etc.....	200.00
Oil waste for transformers, etc.....	200.00
Lamps, fuses, cord, rosettes, switches, etc.....	1,000.00

WATER WORKS AND SEWERAGE.

We must have:

Repairs on toilets, wash basins, sinks, etc.....	\$500.00
We should have some more toilets and urinals.....	600.00
Locks, keys, etc.	100.00

Respectfully submitted

CHARLES BATT,

Superintendent of Grounds, Heating Plant and Water Works.
November 20, 1912.

REPORT OF THE REGISTRAR.

To the President of the College:

Sir: Up to and including November 20th 1912, one thousand one hundred students had registered for the 1912-13 courses, made up as follows:

Summer School Students 1912.....	224	
Registration to November 26th.....	876	
Total		1,100
Summer School Students 1911.....	150	
Registrations to Nov. 27th.....	774	924
Increase for 1912.....		176

The courses taken are shown in detail in the accompanying report.

As all the original registration and other important documents are filed in this office, fireproof cabinets are very urgently required. The present filing cabinets are made entirely of wood, and would offer no resistance to a serious conflagration, and there would be no means of replacing such original

papers if destroyed by fire. Such fire proof cabinets could be obtained at a very nominal cost—I think as many as are required for present needs could be obtained for less than \$100.00—and I respectfully suggest that this matter receive earnest consideration.

The Registrar's Department has resolved itself more or less into a General Information Bureau, and the constant requirements of the students, and the attention devoted to persons making enquiries personally and over the telephone, make it almost impossible for me to attend personally to the clerical work of the office. After each examination the work of the department becomes very heavy, and under the present arrangements casual labor is hired, but not only is the work rendered by such casual assistants very unsatisfactory, but is more expensive ultimately than if organized assistance were supplied for the department. What is really required is an assistant who can operate the typewriter intelligently and expeditiously, and there is sufficient work in the office to keep such an assistant constantly employed. I submit that the result altogether would be far more creditable to the College generally than is now possible, and moreover the department would not cost so much to run as it does at present.

I submit these suggestions as my honest convictions regarding the needs of the office, and with a view to making it thoroughly efficient, and dealing with its requirements in a satisfactory and workmanlike manner.

Respectfully submitted,

J. D. HOWELL,
Registrar.

December 3rd, 1912.

REPORT OF THE CHAIRMAN ON STUDENT AFFAIRS.

To the President:

Sir:—The work of the Committee on Student Affairs has to do with students away from school proper—on the streets, at their boarding houses or other places they may visit. A part of the work is rendered disagreeable because of a feeling on the part of students and housekeepers that we are prying into private affairs. While that is true, some of the landladies are glad of the help we can give, and some students appreciate that our purpose is to help them.

Every year the College has tried to get the students to understand that the different committees dealing with them will be glad to help them in school or out, if only they will make their needs known. But in spite of all that can be urged or advised, students occasionally almost suffer for want, through timidity or the fear of seeming to be poor.

There are several hundred boarding houses in Logan, many of them with only one, two or three students, and only a very few having ten or more. Under these conditions, visiting becomes very difficult, and its purpose is partly thwarted by the unwillingness of most of the landladies to make any complaint. Most of the people who keep boarders do it as a means of making a living, and so do not like to jeopardize their small incomes by telling things that might result in students going elsewhere.

While each year we get a number of boys and girls who are indifferent about their work in school and carelss of their conduct generally, it is only right to say that most of our students are exemplary in their general conduct. They are ladies and gentlemen in school and out, and their behavior tends to preserve and strengthen the good reputation of our school.

The College should have more young women students, the proportion generally being one woman to three men, but a great drawback to their coming is the lack of boarding accommodations for them. A canvas of the city will show at any time nine or more places for men to one for women. This condition is easily explained, but the explanation does not remedy matters. As the importance of Domestic Science and Art becomes more and more obvious; and as the State high schools call each year for an increased number of teachers for these subjects, it is most probable that more young women will be attracted to the College. In order to give them the homes they should have, it seems that the State must, before long, the sooner the better, appropriate funds for the building of at least one dormitory, providing neat, comfortable sanitary rooms, with some provision for board, perhaps an extension of the present cafeteria plan. If our State officials could sometimes see young women trudging around day after day almost begging to be taken in, they would realize that the way of getting an education is hard for the female part of our citizens at least.

Another matter that seems to demand early attention is

that of diseases among our students. While we feel that our students are comparatively free from sexual disorders, we know that a few each year are unclean. The possibility of contamination from such, brings up the need of some means of determining the truth before its presence is accidentally forced on us.

We wish to renew a recommendation that the College employ some qualified man, who could examine suspicious cases, and to whom all persons notified would be obliged to report. A man could probably be found who could do some teaching, and would thus be on hand most of the time. Any student found to be suffering from communicable disease should be suspended from school and should be denied re-admission until our expert would say that he or she is permanently cured.

From general information it appears that venereal diseases are becoming more and more common. With such a condition existing it seems to be only a question of time when most or all persons applying for matriculation in our different schools must submit to the health test as a prerequisite. Such a suggestion rather shocks our sense of propriety, but in the past such a sense has often had to give way to the good of the race.

The Agricultural College is attracting a very worthy lot of young people, and it seems that one of the least of our obligations is to allow them the privilege of mingling freely without danger to themselves and their descendants. We take a very material pride in what we are helping our students to do and to become, but we certainly should not be satisfied until we are reasonably certain that they will return home as clean, physically and morally, as they were when they came to us. Until we do assume such a position, unreasonable though it may now appear to many, we shall not be doing our whole duty to the State in protecting its most valuable asset, its people, and in trying to lift them above the immoral agencies which, more than any others, are sapping those basic vitalities without which the individual or the State becomes a failure.

Respectfully submitted,

JOHN T. CAINE,

Chairman of the Committee on Student Affairs.

December 10, 1912.

Biennial Report of the Secretary

For the Biennium Ending Nov. 30, 1912

LOGAN, UTAH, DEC. 16, 1912.

Honorable President and Board of Trustees, Utah Agricultural College:

LADIES AND GENTLEMEN:—The following is my Biennial Report. It is made up of the following items:

- I. A Report of Receipts and Expenditures.
- II. An Inventory of all College Property.
- III. A Report of the Fire Insurance Carried.
- IV. Report of College Incidental Fund.
- V. Financial Report of Student Body Organization.

I.

Receipts and Expenditures.

THE COLLEGE.

Receipts.

Balance with Treasurer Nov. 30, 1910.....	\$ 20,036.00
Cash on hand Nov. 30, 1910.....	2,901.57
From U. S. Government (Morrill & Nelson Funds)	100,000.00
From State (General Maintenance Appropriation)	81,558.66
From State (Interest on Land Grant Fund)	32,524.79
Fees from Students	19,549.89
Sales of Products, etc.....	8,643.61
New Gymnasium Fund	60,629.66
State Appropriation	\$50,000.00
Thomas Smart	10,000.00
Student Body Organization.....	500.00
U. A. C. Agricultural Club	70.00
Sorosis Society	10.00
Interest from Savings Bank.....	49.66

State Appropriation New Power Plant.....	40,000.00
From Student Body Organization.....	195.00
Receipts from Bookstore (part Biennium).....	2,714.37
Receipts from Creamery (part Biennium).....	10,927.26
Receipts from State Board Horse Commissioners..	35.95
Receipts from Cafeteria.....	736.20
Overdraft our books (due from State).....	37,002.52
State Fund Treasurer Overdraft..	\$67,700.05
Government Fund Treasurer Bal- ance	29,293.58
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Overdraft on Treasurer.....	38,406.47
Less Cash on hand.....	1,403.95
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(Including Revolving Fund \$1,000.00)	
Total	\$417,455.48

Expenditures.

General Maintenance	\$244,476.20
Salaries	\$167,631.87
From Gov. Fund...	\$97,101.07
From State Fund..	70,530.80
<hr/>	
Labor	11,623.77
Supplies	18,320.93
Fuel	9,533.55
Insurance	1,177.15
Light and Power.....	5,574.28
Telephone and Telegraph.....	1,350.22
Postage and Stationery.....	1,556.82
Printing and Advertising.....	8,413.47
Repairs (Plant and Equipment) ..	8,645.03
Traveling Expenses	1,978.99
Water Tax	483.85
Fairs and Exhibits.....	2,831.20
Unclassified Expense	5,355.07
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General Equipment	22,089.04
Furniture	6,933.20
Machinery and Implements.....	1,080.68
Scientific Apparatus	4,843.56
Books, Maps, etc.....	3,910.16
Live Stock	2,428.38
Unclassified	2,893.06
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Buildings and Improvements.....	7,018.13
Main Building	2,891.45
Residences	2,889.86
Campus and Water Works.....	548.49
Shops and Barns.....	647.51
Woman's Building	22.20
Unclassified	18.62
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New Gymnasium	62,314.99
New Power Plant.....	48,913.80
New Heating Plant	19,721.84
Bookstore Purchases (part of Biennium).....	1,612.17
Creamery Purchases (part of Biennium).....	11,230.91
State Board of Horse Commissioners.....	78.40
<hr/>	
Total	\$417,455.48

FARMERS' INSTITUTE FUND.

Receipts.

Balance with Treasurer Nov. 30, 1910.....	\$ 234.39
From State Appropriation.....	19,924.07
Overdraft on Treasurer (due from State).....	1,871.78
<hr/>	
Total	\$ 22,030.24

Expenditures.

Traveling Expenses	\$ 5,145.22
Printing and Advertising.....	911.91
Equipment	874.12
Supplies and Incidental Expenses.....	1,337.97
Salaries and Labor.....	13,591.02
Office Rent	170.00
<hr/>	
Total	\$ 22,030.24

EXPERIMENT STATION.

(Hatch Fund.)

Receipts.

Balance with Treasurer Nov. 30, 1910.....	\$ 429.81
From U. S. Government during Biennium.....	30,000.00
Overdraft on Treasurer.....	600.25
Total	<u>\$ 31,030.06</u>

Expenditures.

Salaries	\$ 17,040.50
Labor	6,099.26
Publications	333.86
Postage and Stationery.....	1,427.86
Freight and Express.....	33.94
Heat, Light and Water.....	176.82
Chemical Supplies	331.96
Seeds, Plants and Sundry Supplies.....	772.49
Fertilizers (including Water Tax).....	172.05
Feeding Stuffs	979.44
Library	220.54
Tools, Implements and Machinery.....	565.36
Furniture and Fixtures.....	800.74
Scientific Apparatus	285.09
Live Stock	237.00
Traveling Expenses	654.27
Buildings and Land.....	828.88
Contingent Expenses	70.00
Total	<u>\$ 31,030.06</u>

EXPERIMENT STATION.

(Adams Fund.)

Receipts.

Balance with Treasurer Nov. 30, 1910.....	\$ 694.32
From U. S. Government.....	30,000.00
Total	<u>\$ 30,694.32</u>

Expenditures.

Salaries	\$ 15,291.73
Labor	7,307.11
Postage and Stationery	104.35
Freight and Express	64.53
Heat, Light and Water	521.69
Chemical Supplies	1,058.22
Seeds, Plants and Sundry Supplies	403.33
Feeding Stuffs	1,192.26
Library	52.53
Tools, Implements and Machinery	970.63
Furniture and Fixtures	56.00
Scientific Apparatus	1,177.73
Traveling Expenses	832.95
Buildings and Land	321.90
Balance with Treasurer	1,339.36
Total	\$ 30,694.32

EXPERIMENT STATION.

(Miscellaneous Fund.)

Receipts.

From Sale of Products, etc	3,517.98
From Conservation Commission	520.72
Total	<u>4,038.70</u>

Expenditures.

Overdraft on Treasurer Nov. 30, 1910	1,095.06
Labor	23.69
Postage and Stationery	70.86
Freight and Express	12.51
Chemical Supplies	28.24
Seeds, Plants and Sundry Supplies	237.70
Ferterilizers	2.00
Feeding Stuffs	806.61
Library	4.03
Tools, Implements and Machinery	101.14
Furniture and Fixtures	22.50
Scientific Apparatus	36.60
Traveling Expenses	332.24
Buildings and Land	24.15
Contingent Expenses	75.00
Balance with Treasurer	1,166.37
Total	<u>4,038.70</u>

EXPERIMENT STATION.

(State Appropriation.)

Receipts.

From State Appropriation	33,165.20
Arid Farm Sales	983.75
Southern Utah Experiment Farm Sales,	741.76
Milk Testing Fees and Sales	733.75
Overdraft	450.16
On Treasurer	475.16
Loss Cash (Rev. Fund)	25.00
<hr/>	
Total	36,074.62

Expenditures.

Overdraft on Treasurer Nov. 30, 1910	1,480.00
Salaries	15,801.51
Labor	9,124.12
Publications	2,432.86
Postage and Stationery	306.50
Chemical Supplies	242.37
Seeds, Plants and Sundry Supplies	1,174.07
Fertilizers (Including Water Tax)	37.75
Feeding Stuffs	22.80
Library	6.75
Tools, Implements and Machinery	1,342.69
Furniture and Fixtures	274.90
Scientific Apparatus	204.60
Live Stock	255.00
Traveling Expenses	2,152.61
Freight and Express	177.99
Heat, Light and Water	221.58
Buildings and Land	544.57
Contingent Expenses	271.95
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Total	36,074.62

PANGUITCH SCHOOL FARM FUND.

Receipts.

From State Appropriation	2,045.89
From Sale of Products	25.70
Overdraft on Treasurer (Due from State)	252.50
Total	<hr/> 2,324.09

Expenditures.

Labor	809.70
Traveling Expenses	57.95
Seeds, Plants and Sundry Supplies	157.20
Feeding Stuffs	57.76
Tools, Implements and Machinery	376.30
Live Stock	664.00
Water Tax	69.93
Postage and Stationery.....	1.40
Freight and Express	129.85
Total	<hr/> 2,324.09

RECAPITULATION.

Summary of Receipts.

The College (Total)	\$380,452.96
Farmer's Institute Fund	20,158.46
Experiment Station (Hatch Fund)	30,429.81
Experiment Station (Adam's Fund)	30,694.32
Experiment Station (Miscellaneous Fund)	4,038.70
Experiment Station (State Appropriation)	35,624.46
Panguitch School Farm Fund	2,071.59
Overdraft on Treasurer (Due from Ssate)	37,671.48
Total	<hr/> \$541,141.78

Summary of Expenditures.

The College (Total)	\$417,455.48
Farmer's Institute Fund	22,030.24
Experiment Station (Hatch Fund).....	31,030.06
Experiment Station (Adams Fund).....	29,354.96
Experiment Station (Miscellaneous Fund).....	2,872.33
Experiment Station (State Appropriation)	36,074.62
Panguitch School Farm Fund	2,324.09
Total	<u>\$541,141.78</u>

NOTE: In the case of Bookstore, Creamery and State Board of Horse Commissioners in the above report the Total Receipts and Disbursements are given for the first six months of the Biennium. For the last eighteen months only the net receipts, or profits are given. As the Bookstore, Creamery, Cafeteria, etc. are on a commercial basis it has been decided to carry them in a separate Fund called the College Incidental Fund. The profits or net receipts are turned in to the general College Fund at the end of each year. See report on this fund below.

II.

INVENTORIES.

Not including Supplies and Land Grant.

November 30, 1912.

I. The College:

Land 121 acres at \$200.00 per acre.....	\$ 23,200.00
Buildings and Fixed Equipment.....	473,700.00
Main Building	\$175,000.00
Boiler House and Heating	
Plant	30,000.00
Gymnasium	65,000.00
Experiment Station	5,000.00
Mechanic Arts Building.....	30,000.00
Woman's Building	40,000.00
*State Power Plant.....	60,000.00
Transformer House and Sub-	
Station	5,800.00

Residences	11,300.00
President's\$	4,500.00
Director's	3,000.00
Agronomist's ...	2,000.00
Three Workmen's Cottages	1,800.00
<hr/>	
Farm Buildings	37,700.00
Horse Barn	7,000.00
Cattle Barn	10,000.00
Sheep Barn	6,000.00
Piggery	1,700.00
Poultry House ..	4,700.00
Stock Judging Pa- vilion	5,300.00
Tie Sheds and Fencing	3,000.00
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Veterinary Hospital	1,500.00
Conservatory	6,000.00
Fixed Equipment	6,400.00
Sewer System ...	1,500.00
Water Works ...	4,000.00
Commercial Dept. Off. Equip. ...	900.00
<hr/>	
General Equipment	130,120.26
Offices	4,548.60
President's Office	3,197.00
Secretary's Office	942.60
Registrar's Office	409.00
<hr/>	
Department of Instruction....	89,751.29
Agronomy	2,384.19
Animal Husb'dry	12,895.10
Art Department..	841.33
Bacteriology	1,175.24
Botany	2,477.51
Correspondence..	84.25
Chemistry	3,536.62
Commerce	3,144.35
Dairying	2,276.30

Domestic Science.	6,332.52	
Domestic Arts ..	2,325.90	
Mechanic Arts ..	18,078.98	
Engineering	4,670.60	
English	483.50	
Horticulture	7,689.25	
Mathematics	548.50	
Military	270.71	
Mod'n Languages	60.90	
History	38.50	
Music	3,268.75	
Photography	170.00	
Geology and Min- eralogy	987.35	
Physics	4,271.91	
Physical Educa- tion	4,019.43	
Veterinary Science	722.70	
Zoology and En- tomology	6,729.60	
Poultry Lab.	267.10	
Miscellaneous Equipment.....		35,820.37
Library	26,411.02	
Bookstore	260.00	
Janitorial	4,902.10	
Construction, Re- pairs, Plumbing	1,144.80	
State Board Horse Commissioners.	343.17	
Cafeteria	759.28	
Bookstore Mer- chandise	2,000.00	

II. Experiment Station:

General Equipment		21,007.92
Offices	3,086.60	
Director's	1,319.15	
Clerk's	332.85	
Reading Room ..	494.75	
Basement	240.00	
Poultry Manager's	458.75	
Irrigation	241.10	

Departments	17,921.32
Agronomy	3,785.80
Animal Husb'dry	4,061.80
Chemistry	4,110.70
Horticulture	929.62
Poultry	2,973.35
Zoology and Entomology	1,437.85
Veterinary Science	289.00
Photography	109.15
Cow Testing Association	224.05
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III. Arid Farms, Buildings and Equipment.....	4,200.00
IV. Farmers' Institute, Equipment.....	1,141.35
V. Southern Utah Experiment Farm, Buildings and Equipment.....	8,177.00
VI. Panguitch Farm, Equipment	1,063.10
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Total	\$662,609.63

*State Power Plant may not be considered as College property.

The above Inventories for Equipment were hurriedly compiled from the Inventories as handed in by the Departments in the rough. They will be checked carefully, corrected and permanently filed in the Secretary's Office.

III.

REPORT ON THE FIRE INSURANCE CARRIED BY THE COLLEGE.

November 30, 1912.

All the Insurance carried on Plant at Logan with the exception of the New Gymnasium, the Boiler Insurance, Elevator Insurance and Insurance on Ordnance Stores is covered by a blanket policy as follows:

Main Building and Contents.....	\$148,000.00
Experiment Station and Contents.....	7,000.00
Woman's Building and Contents.....	32,000.00
Mechanic Arts Building and Contents.....	32,000.00
Transformer House and Contents.....	1,000.00
Poultry House and Contents.....	5,000.00
Horse Barn and Contents.....	6,000.00
Tie Shed and Contents.....	1,500.00
Cattle Barn and Contents.....	7,600.00
Sheep Barn and Contents.....	3,300.00
President's Residence	2,700.00
Director's Residence	2,000.00
Agronomist's Residence	1,600.00
Three Employees' Cottages	1,200.00
Green House and Contents.....	3,200.00
Piggery	1,000.00
Veterinary Hospital and Contents.....	900.00
Stock Judging Pavilion	4,000.00
Total	<hr/> \$260,000.00

Insurance is carried in addition to the above as follows:

Buildings at St. George.....	2,100.00
Steam Boilers at Heating Plant.....	20,000.00
Elevator at Woman's Building.....	10,000.00
New Gymnasium	10,000.00
Ordnance Stores (to U. S. Gov.).....	7,148.94
Total all Insurance Carried.....	<hr/> \$309,248.94

This is divided among the various Companies as follows:

The Home Fire of Utah.....	\$ 54,100.00
National Union of Pittsburg	25,000.00
Hartford Steam Boiler	20,000.00
Milwaukee Mechanics of Milwaukee.....	19,200.00
Germania of New York.....	17,500.00
Northwestern National of Milwaukee	15,000.00
German Fire of Peoria, Illinois.....	12,000.00
Law Union and Rock, San Francisco.....	10,000.00
U. S. Fidelity & Guarantee Co.....	10,000.00
The Home Fire of New York.....	8,648.94
Stuyvesant Fire of Fort Worth, Texas.....	8,000.00
Fireman's Fund Insurance Co., San Francisco....	7,500.00
The Northern Assurance Co. of London.....	6,500.00
Security Insurance Co. of New Haven, Conn.....	6,000.00
Dixie Fire Insurance Co., Greensboro, N. C.....	5,500.00
Calumet Insurance Co. of Chicago.....	5,000.00
Prussian Nat'l Insurance Co., Stettin, Germany...	5,000.00
Aetna Fire Insurance Co., Hartford, Conn.....	5,000.00
Hartford Fire Insurance Co., Hartford, Conn.....	5,000.00
Svea Insurance Co., Gottenburg, Sweden.....	5,000.00
English American Underwriters, Liverpool.....	5,000.00
Millers National Insurance Co. of Chicago.....	5,000.00
Pennsylvania Fire Insurance Co., Philadelphia....	5,000.00
German American Insurance Co. of New York...	4,000.00
West Chester Fire Insurance Co. of New York...	4,000.00
St. Paul Fire & Marine of St. Paul.....	4,000.00
Duchess Fire Insurance Co. of Poughkeepsie, N. Y.	4,000.00
Palatine Fire Insurance Co. of London.....	2,900.00
Phenix Fire Insurance Co. of Brooklyn.....	3,000.00
American Central Insurance Co. of St. Louis.....	2,500.00
Sun Insurance Office of San Francisco.....	2,500.00
Central National Fire Insurance Co. of Chicago...	2,400.00
Williamsburg City Fire Insurance Co.....	2,000.00
Glens Falls Insurance Co. of New York.....	2,000.00
Debuque Fire & Marine Fire Ins. Co., Seattle.....	2,000.00
Northwestern Mutual Fire Ins. Co., Seattle.....	2,000.00
American Insurance Co., of Newark, N. J.....	2,000.00
International Fire Insurance Co. of Fort Worth, Texas	2,000.00
Queen Insurance Co. of New York.....	2,000.00
Globe & Rutger's Fire Insurance Co. of N. Y.....	1,000.00
Total	<u>\$309,248.94</u>

IV.

THE FOLLOWING IS A REPORT OF THE RECEIPTS
AND DISBURSEMENTS OF THE COLLEGE
INCIDENTAL FUND FOR ONE YEAR
ENDING JUNE 30, 1912.

This Account was Inaugurated July 1, 1911.

Receipts.

Bookstore Sales	\$ 8,261.81
Creamery Sales	28,272.03
Cafeteria Sales	4,127.80
Military Suits to Students.....	1,174.50
Students Deposits, Laboratories, etc.....	1,706.50
1911 Class Scholarship Fund.....	1,316.80
State Board Horse Commissioners.....	2,137.60
Overdraft, Military Suits, carried forward.....	5.05
Total	<hr/> \$ 47,002.09

Disbursements.

Bookstore, Books and Merchandise.....	\$ 7,868.69
Creamery, Milk, Labor and Supplies.....	27,652.15
Cafeteria, Labor and Supplies.....	3,752.04
Military Suits Cost.....	1,179.55
Students Deposits Refunded	1,365.55
1911 Class Loan Fund Loans.....	1,000.00
State Board Horse Commissioners.....	1,257.19
Gain on Bookstore paid to College Fund.....	393.12
Gain on Creamery paid to College Fund.....	619.88
Gain on Cafeteria paid to College Fund.....	375.76
Students Deposits forfeited paid to College Fund..	340.95
Balance forward 1911 Class Scholarship Fund....	316.80
Balance forward State Board Horse Commissioners	880.41
Total	<hr/> \$ 47,002.09

V.

THE FOLLOWING IS A REPORT OF THE RECEIPTS
AND EXPENDITURES OF U. A. C. STUDENT
BODY ORGANIZATION FOR TWO
YEARS ENDING JUNE 30, 1912.

	Net Receipts.	Net Cost.
Balance on hand July 1, 1910.....	\$ 102.90	
Fees	7,260.00	
Received	\$7,322.00	
Refunded	62.00	
Faculty Tickets Sold.....	315.00	
Foot Ball		603.37
Received	2,840.55	
Paid out	3,443.92	
Basket Ball		372.25
Receipts	331.60	
Paid out	703.85	
Base Ball		382.45
Receipts	67.80	
Paid out	450.25	
Track Team		289.00
Receipts	311.70	
Paid out	600.70	
Student Body Dances.....		218.00
Receipts	184.50	
Paid out	402.50	
Lyceum Course		717.95
Receipts	611.30	
Paid out	1,329.25	
Dramatics		848.47
Receipts	1,302.15	
Paid out	2,150.62	



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Musicals		459.71
Receipts	673.70	
Paid out	1,133.41	
<hr/>		
Student Life		1,242.71
Receipts	1,099.18	
Paid out	2,341.89	
<hr/>		
Debating		518.25
Receipts		
Paid out	518.25	
<hr/>		
Receipts from Bleachers	53.40	
Receipts from Buzzer Publication.....	123.86	
Paid for "A" Sweaters for Athletics....		426.05
Paid for Cup and Medals other Activities		126.10
Paid for Buzzer Publications.....		150.00
Paid to College for Help and Equipment		315.00
Sinking Fund (Savings Bank).....		500.00
Miscellaneous Expense of Association..		290.60
Balance on Hand.....		395.25
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Totals	\$7,855.16	\$7,855.16

Each Student is charged a Student Fee of \$5.00 (Winter Course \$2.50) on entering School. This entitles the Student to admission to all Student Body affairs and also their subscription to the College Papers. The Fund is used to carry on all Student activities as per the above Report.

I hereby certify that the above is a true and correct report of the Financial condition of the College, and of the Receipts and Disbursements of same for the Biennium ending Nov. 30, 1912. I further certify that the books have been well kept, that the report agrees with same, and that proper duplicate receipts and vouchers are on hand for all Receipts and Disbursements.

Very respectfully submitted,

JOHN L. COBURN,
Secretary.

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UNIVERSITY OF ILLINOIS